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# USSR Report

ENERGY

No. 114

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## USSR REPORT

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## CONTENTS

## ELECTRIC POWER

I. G. Morozov Comments on CEMA Radiation Safety Conference (SOVETSKAYA LITVA, 23 May 82) .....	1
CEMA Conference on Radiation Safety (SOVETSKAYA LITVA, 19 May 82) .....	4
Report on CEMA Radiation Safety Conference (R. Chesna; SOTSIALISTICHESKAYA INDUSTRIYA, 22 May 82) ....	5
Paper Reports on Atommash Activities To Overcome Failure (SOTSIALISTICHESKAYA INDUSTRIYA, 8 Jul 82) .....	6
Navoiyskaya GRES Commissioned To Full Capacity (PRAVDA VOSTOKA, 3 Jun 82) .....	7
Konakovskaya GRES Introduces Automatic Control System (S. Borisova; PRAVDA, 12 Jun 82) .....	8
UZTM Excavator Moved to Left Bank of Miatlinskaya GES Site (I. Glukhov; STROITELNAYA GAZETA, 7 May 82) .....	10
Briefs	
Runner for Sayano-Shushenskaya GES	11
Volzhskaya TETs-2 Under Construction	11
Nizhnekamskaya GES	11
Tobolskaya TETs	12
TETs-2 in Lvov	12
Ingurskaya-Stavropolskaya Powerline	12
Balakovskaya AES Reactor	12
Spandaryanskaya GES Construction	12

## PIPELINES

Socialist Competition Said To Aid Building of Urengoy-Novopskov Pipeline (STROITEL'NAYA GAZETA, 25 Apr 82) .....	13
Quality in Construction of Urengoy-Novopskov Gas Pipeline Stressed (STROITEL'NAYA GAZETA, 14 May 82) .....	19
Developments in Urengoy-Uzhgorod Gas Pipeline Construction Reported (IZVESTIYA, 4 Jul 82) .....	25
Construction Begun on Carpathian Segment of Urengoy-Uzhgorod Pipeline (RABOCHAYA GAZETA, 7 Apr 82) .....	32
Main Factors That Hold Up Siberian Pipeline Erection Named (G. N. Sudobin; SOVETSKAYA ROSSIYA, 3 Jun 82) .....	34
Orenburg-Kazan' Pipeline Passes Testing (R. Yevseyeva; IZVESTIYA, 17 Jul 82) .....	38
New Gas Pump Uses Aviation Drive (A. Kirichenko; SOTSIALISTICHESKAYA INDUSTRIYA, 10 Jul 82).	41
Urengoy-Uzhgorod Gas Pipeline Progress Traced (PRAVDA, 19 Jul 82) .....	44
Pipeline Anti-Corrosion Coating Developed (A. Kirichenko; STROITEL'NAYA GAZETA, 27 Jun 82) .....	46
New Gas Pumping Unit Tested (V. Gerasimov; PRAVDA, 25 May 82) .....	48
Briefs	
Urengoy-Novopskov Gas Pipeline	50
Pipeline Welding	50
River Transport of Pipes	50
Increased Equipment Production	51
Fiberglass Pipes	51
Oil Pipeline Opens	51
Gas Pipeline Electric Engines	51
Multilayer Pipes	52
Underwater Pipeline	52
Gas Pipeline Book	52
Accelerated Equipment Production	53
Oil Losses	54
Flushing Composite	54
Pipe Molding	54
Early Pipeline Completion	54
Pipeline Welding	55
Final Welding	55
Compressor Equipment Supply	55

Arctic Oil	55
Caspian Pipeline	55
Air Coolers	55
Pipeline Construction Begins	56
Land Recultivation	56
New Gas Pumps	56
Pipe Shipments	56
Pipe Laying Started	57
FRG Shipments	57
Early Pipeline Completion	57
Oil for Virgin Land	57
Kura Pipeline Section	58
Pipeline Excavators	58

#### GENERAL

Objections To Current Development Strategy for Siberia Voiced (V. Strizhev; SOVETSKAYA ROSSIYA, 11 Jun 82) .....	59
Neryungri Housing Construction Described (L. Rybakovskiy; SOTSIALISTICHESKAYA INDUSTRIYA, 5 Jun 82).	63
Blame Distributed for Construction Lagging (Yu. Belanov; SOTSIALISTICHESKAYA INDUSTRIYA, 17 Jun 82) ..	65
Potentialities of Mangyshlak TPC Examined (I. Gribov; EKONOMICHESKAYA GAZETA, Jul 82) .....	68
Ekibastuz Experiences Acute Housing Shortage (V. Bugayev; TRUD, 22 Jun 82) .....	73
New Designs Advocated for Tyumen' Settlement House Construction (I. Varshavskiy; STROITEL'NAYA GAZETA, 4 Jun 82) .....	77
Mobile Workers' Supply on Urengoy-Petrovsk Line Explained (V. Zimon; IZVESTIYA, 30 Jun 82) .....	80
Armenian Energy Source Potential Examined (G. Adonts; KOMMUNIST, 16 Jun 82) .....	84
Surgut Wants To Improve Recreational Travel (TRUD, 1 Jun 82) .....	87
Travel Conditions for Personnel Rotating to West Siberian Oilfields Deplored (A. Laletin; TRUD, 8 Jun 82) .....	90
Briefs Tatarskaya Nuclear Power Station	93



## ELECTRIC POWER

### I. G. MOROZOV COMMENTS ON CEMA RADIATION SAFETY CONFERENCE

Vilnius SOVETSKAYA LITVA in Russian 23 May 82 p 3

[Report: "Horizons of Nuclear Power Engineering"]

[Text] The conference of specialists of CEMA-member countries on ensuring radiation safety in operating nuclear electric power stations, which lasted 4 days, ended on 21 May in Vilnius. ELTA correspondent Romualdas Chesna asked Ivan Georgiyevich Morozov, deputy chairman of the USSR State Committee for Utilization of Atomic Energy, to comment on the work of the conference and describe prospects for the development of the youngest sector of power engineering--the nuclear one.

The Soviet Union, which opened the era of peaceful utilization of nuclear energy, I. G. Morozov said, has firmly retained the leading scientific-technical positions in this field. Nuclear energy has been making an increasingly important contribution to our country's fuel and power balance. This has been made possible as a result of successful solution of a range of scientific-technical and engineering questions. Much is being done so that "peaceful atom" would reliably work for the benefit of man.

A broad program of AES construction is being implemented in our country. The Basic Directives for Economic and Social Development of the USSR for 1981-85 and the period up to 1990 provide for rapid development of nuclear power engineering in the European part of the USSR. During the current five-year plan, it is planned to commission power-generating units of 24-25 million kW aggregate capacity at AES's. Construction is currently underway at more than 20 sites. During the current five-year plan, the Smolenskaya, Kalininskaya, Yuzhno-Ukrain-skaya, Zaporozhskaya, Rostovskaya, Krymskaya, Ignalinskaya and some other nuclear electric power stations will supply their first current. Incidentally, Lithuania is the fifth Soviet republic which will have AES's.

In 1985 the output of electric energy by AES's in our country will amount to 14 percent of electric energy generated by all electric power stations.

Construction of nuclear electric power stations in other CEMA-member countries has been acquiring a wide scope. Large AES's are already in operation in Bulgaria, the GDR and Czechoslovakia. The first AES is under construction in

Hungary and preparations are underway for construction of AES's in Romania, Poland and Cuba. The Khmel'nitskaya AES of 4 million kW capacity, which will supply a part of the electric energy to fraternal countries, is being jointly constructed in the Ukraine with Hungary, Czechoslovakia and Poland.

Work to use nuclear fuel for generation of thermal energy is continuing. For example, nuclear heat and electric power stations (ATETs) and nuclear heat supply stations (AST) are being created to supply heat to cities. The first AST units are already under construction in Gorkiy and Voronezh and construction of the Odesskaya ATETs has begun. CEMA-member countries have expressed great interest in AST's. This is another field in which nuclear energy can be used for the benefit of man.

Along which new directions is the national power engineering being developed?

Approximately up to 1990, nuclear electric power stations in the USSR will be supplied thermal-neutron reactors of up to 1 million kW capacity and higher. The broad introduction of fast-neutron breeder reactors will begin afterward. What is their advantage? The thermal-neutron reactors operate primarily by fission of uranium 235 of which there is less than 1 percent in natural uranium. The other fuel, namely uranium 238 is not used. But fast-neutron reactors use both components of natural uranium and also form a new fissionable substance--plutonium, which is an effective nuclear fuel. After operating a few months, such reactors have more fuel than was originally loaded. The ability of breeder reactors to reproduce nuclear fuel will make it possible to ensure the required rate of power engineering development.

What effect do AES's have upon man and the environment?

The deep and thorough studies conducted in the socialist community countries as well as in other countries in the world, and mainly the operation of AES's have irrefutably proved the safety of nuclear power engineering for the environment and population as well as for the maintenance personnel. Nuclear power stations operate without using oxygen and do not discharge any chemically harmful effluent into the atmosphere. They are ecologically cleaner than thermal power stations operating on coal.

The extent of AES's effect on the environment has been eloquently expressed by the results of systematic study of radioactivity on the Dunay River and the Baltic Sea. An international expedition of specialists from CEMA-member countries, which was conducted a few years ago, found no sections with increased level of radioactivity on the Dunay River from its mouth and over a distance of nearly 2,000 km upstream. The results of the radioactivity study on the Baltic Sea have been similarly satisfactory. Systematic studies have indicated a lack of tendency toward increased radioactivity in these international waterways, despite operation of several large AES's over an extended period of time in the Dunay River basin and along the coast of the Baltic Sea.

The radiation safety of personnel working directly at AES's is ensured by reliable biological shielding of the reactors and of all industrial equipment which is a source of radiation as well as by a radiation monitoring system.

Nuclear energy and nuclear power engineering do not tolerate liberties and demand that they be regarded with respect. As a result, it is the cleanest and safest type of energy today. This has also been confirmed by the work of the conference at which the experience of operating AES's over an extended period of time has been generalized.

Of course, there are many problems in this field. They include questions of further raising safety in utilization of nuclear energy, optimizing AES personnel protection, improving radiation and radiometric monitoring and reducing dose loads during repairs and transfer work. Much has to be done in raising radiation safety in handling radioactive waste and in developing and introducing more effective measures for protecting the environment. Close cooperation of the socialist community countries is a guarantee of successful fulfillment of these tasks.

A ponderable contribution to the study of problems connected with ensuring radiation safety is also being made by Lithuanian scientists. Specifically, specialists of the Physics Institute of the Academy of Sciences of the Lithuanian SSR have been conducting extensive work in measuring reactivity of the Baltic Sea and pollution of the atmosphere. Currently the institute's field of activity is in the construction area of the Ignalinskaya AES. This work will undoubtedly contribute to preserving the ecological stability and cleanness of the environment.

9817

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## ELECTRIC POWER

### CEMA CONFERENCE ON RADIATION SAFETY

Vilnius SOVETSKAYA LITVA in Russian 19 May 82 p 4

[Report: "Conference of CEMA-Member Country Participants"]

[Text] Vilnius, 19 May (ELTA)--Soviet scientists together with specialists of other socialist countries have created systems which guarantee complete safety of nuclear electric power stations for the work of maintenance personnel as well as for the population and environment. When technical requirements are strictly observed, the AES's are cleaner than thermal electric power stations operating, for example, on coal. Scientifically based radiation safety norms and regulations in designing, constructing and operating nuclear electric power stations are in force in the Soviet Union.

This was reported at the conference of CEMA-member country specialists which opened in Vilnius today to discuss radiation safety problems in operation of nuclear electric power stations. Participating in its work are specialists from the People's Republic of Bulgaria, the Hungarian People's Republic, the GDR, the Republic of Cuba, the Polish People's Republic, the Socialist Republic of Romania, the USSR and the CSSR and staff members of CEMA Secretariat and the International Atomic Energy Agency (MAGATE).

The conference was opened by I. Morozov, deputy chairman of the USSR State Committee for Utilization of Atomic Energy. Conference participants were greeted by Yu. Rusenko, deputy chairman of the Council of Ministers of the Lithuanian SSR; A. Zhukauskas, vice president of the Academy of Sciences of the Lithuanian SSR; Prof B. Styro, deputy director of the Physics Institute of the republic's academy; B. Schtregober, representative of CEMA Secretariat; and B. Burhardt, representative of the Scientific-Technical Council on Radiation Safety of the CEMA Permanent Commission for Peaceful Uses of Atomic Energy.

The conference will last 4 days. Its participants will discuss scientific-technical questions on ensuring radiation safety in connection with the development of nuclear power engineering.

9817

CSO: 1822/215

## ELECTRIC POWER

### REPORT ON CEMA RADIATION SAFETY CONFERENCE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 22 May 82 p 2

[Report by TASS correspondent R. Chesna: "Peaceful Atom--For the Good of Mankind"]

[Text] Vilnius, 21 [no month]--Current problems in ensuring radiation safety at operating nuclear electric power stations were discussed at a conference of CEMA-member country specialists, which ended in the Lithuanian capital today.

This conference was of important significance for the socialist community countries where the development of nuclear power engineering has been acquiring an increasingly wider scope, said I. G. Morozov, deputy chairman of the USSR State Committee for Utilization of Atomic Energy.

We can boldly assert today that scientists and specialists of our countries have done everything so that AES's would be completely safe for the maintenance personnel as well as for the population and the environment. Experience proves that when technical requirements are observed, these electric power stations are ecologically cleaner than the thermal ones which operate on coal.

However this does not mean that all problems have already been solved. Specialists are searching for more improved radiation and radiometric monitoring methods and are striving for constant reduction of dose loads during repairs and transfer work. The close cooperation between scientists of the socialist community countries is a guarantee of successful fulfillment of these tasks.

9817

CSO: 1822/215

## ELECTRIC POWER

### PAPER REPORTS ON ATOMMASH ACTIVITIES TO OVERCOME FAILURE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 8 Jul 82 p 2

[Text] Last year the Atommash failed to cope with the planned volume of production of equipment for nuclear electric power stations. Thus it failed to solve the main task facing it. How is this task being fulfilled today and what lessons were learned from last year's failure?

Answers to these questions are given in a correspondence by U. Bogdalov "The Main Check Point," which was carried in the paper's issue No 28 (184) "SOTSIALISTICHESKAYA INDUSTRIYA at the Atommash." The author visited basic shops, including the hull equipment and steam generator shops and has established that its own topics are still virtually in the background.

The materials published in the paper report on the progress of socialist competition in honor of the 60th anniversary of founding the USSR and on leading production workers. It includes a selection of reports under the heading "The Pace of Shock Weeks," a story about party group organizer Viktor Simonov of the Promstroy-2 Administration's SMU-7 and a sketch on Leninist Komsomol prize winner Sergey Tarazanov.

Atommash construction workers address an open letter through the paper to the collective of the Rostovstroymaterialy Association in which they request that affairs be put in order at the association, that work be organized in such a manner so as to make the collective feel its responsibility to construction workers of Volgodonsk and so it would fulfill its tasks by delivering bricks in a proper manner.

The paper also publishes material by A. Zhmakin, chief architect of the house-building combine, entitled "A Local Handwriting" and by V. Yashkova, manager of the Volgodonsk branch of the All-Union Bank for Financing Capital Investments [Stroybank], entitled "Covering Up Defective Output."

Various information is also published, including a photo sketch entitled "At the Man-Made Tsimlyanskoye Sea."

9817

CSO: 1822/216

## ELECTRIC POWER

### NAVOIYSKAYA GRES COMMISSIONED TO FULL CAPACITY

Tashkent PRAVDA VOSTOKA in Russian 3 Jun 82 p 1

[Article: "Navoiyskaya GRES--To Full Capacity"]

[Text] The delicate sensors on the control panel of the Navoiyskaya GRES have recorded that the output of energy by the last, the 12th unit and the entire station has reached planned capacity! This happened 4 months ahead of the fixed time period, enabling power workers to honorably fulfill their pledges assumed this spring in response to greetings from Comrade L. I. Brezhnev, general secretary of the CPSU Central Committee and chairman of the USSR Supreme Soviet Presidium, who warmly congratulated the workers, engineers, technicians and all those who participated in the construction of the electric power station on putting it in operation.

The success of operational workers was greatly facilitated by the high quality of construction and installation work done by power construction workers. The experience accumulated during operation of the 11th comparable unit also had its effect. On recommendations of Navoiyskiy power workers, machine builders of Leningrad made some changes in the design of the 12th unit which raised its degree of economy and reliability and simplified its operation at the same time. This had made it possible to considerably reduce the period set for making it operational.

The Navoiyskaya GRES, which operates on local natural gas, now generates the cheapest electric energy in the system of the Ministry of Power and Electrification (Minenergo) of the Uzbek SSR. As a result of accelerated achievement of planned technical and economic indicators of the power units, expenditures for its construction have been recovered many times over.

Commissioning of the 1,250,000 kW "electric factory" to full capacity ahead of schedule in southern Kyzylkum makes it possible to considerably improve supply of electric energy to the national economy in Navoiyskaya Oblast. Power workers plan to supply nearly 30 million kW-hours of additional electric power to consumers by the end of the year.

9817

CSO: 1822/216

## ELECTRIC POWER

### KONAKOVSKAYA GRES INTRODUCES AUTOMATIC CONTROL SYSTEM

Moscow PRAVDA in Russian 12 Jun 82 p 3

[Article by S. Borisova: "A 'Problems Book' for ASU"]

[Text] Adjustment of the country's first automated chemical control system of water conditions in power-generating units has been completed at the Konakovskaya thermal electric power station.

Shift supervisor O. P. Shcherbina is in charge at the control panel of the chemical shop today. She has responsible tasks: she watches over the conditions in the preparation of water for boilers and turbines of the electric power station and over the quality of water and condensate. A line begins to blink on the televised display screen, characterizing one of the parameters, and instructions are made immediately over the radio:

Shift supervisor of the boiler and turbine shop! Electrical conduction of condensate has increased in the third unit. Check the diagram quickly and eliminate raw water suction.

It is well known that the water used to feed electric power station boilers must be of a certain qualitative composition. The demands are very strict: if too much salt is dissolved in water then it deposits in boiler pipes and on turbine blades. This results in overexpenditure of fuel and sometimes leads to accident. Therefore among the chemical shop's tasks is one to ensure units with water of required quality.

The automated control of water conditions in power-generating units, which has been introduced at the GRES, is of assistance in this respect. It makes automation of data collection possible, rules out errors and promotes reliability of the units and the saving of fuel.

The installation has been created by the collectives of the automated production control system service and the departments of automatics and thermal and chemical control.



Chemical water [khimvodkontrol] is only a part of the extensive automated control system that has been introduced here. The automated control system [ASU] of the Konakovskaya GRES also solves complex industrial process automation tasks as well as production control tasks as a whole. The ASU has been "assigned" to deal with more than 60 tasks and it copes with all of them.

There are many innovations at other production sectors. Last year the relative input of fuel totaled 324.9 g per kW-hour, which was 9 g below the planned indicators. This means that the electric power station was able to operate under full load for a period of 1.5 days on the economized fuel.

Workers of the power station have led in the socialist competition among collectives of the sector for the past 4.5 years. Based on last year's results, the collective has been awarded the Challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the AUCCTU and the Komsomol Central Committee and its name has been placed in the honor log at the USSR Exhibition of Achievements of the National Economy [VDNKh].

Workers of the Konakovskaya GRES decided to save 19,000 tons of fuel this year, which is 1,000 tons more than they had originally pledged.

9817

CSO: 1822/216

## ELECTRIC POWER

### UZTM EXCAVATOR MOVED TO LEFT BANK OF MIATLINSKAYA GES SITE

Moscow STROITELNAYA GAZETA in Russian 7 May 82 p 2

[Article by I. Glukhov: "The Risk Was Justified"]

[Text] A rare operation in the practice of hydraulic engineering construction, which involved moving a 200-ton excavator across the swift Sulak mountain river, has been carried out at the construction site of the Miatlinskaya GES in Dagestan.

Construction workers of the hydroelectric power station recently began working on the foundation pit for the structure of the future hydroelectric power station. In order to accelerate soil and rock excavation work it was necessary to move a large UZTM-type excavator to the left bank at a time when construction of a bridge for hauling heavy cargo has only begun. A bold idea was born at that time: To construct a temporary filling dam. Thorough preparations were made because of a certain risk that was involved (after all, it was a mountain river). The needed quantities of soil were prepared on both banks, temporary transformer substations were installed (the excavator required a voltage of 6,000 V) and leading bulldozer operators of the Chirkeygesstroy, including Suleyman Kazbekov, Kamil Ushanov, Ali Magomedov and Vladimir Mendelev were selected and briefed.

The gates of the Chirkeysкая GES were closed at midnight. One hour later, when the water level dropped in Sulak, bulldozers began filling the dam from both sides, leaving only a narrow strip to let the water flow through. Machine operators Aleksey Chulkov and Naat Alizhakov drove the excavator slowly to the left bank. Truck cranes held the electric cable in a suspended position. Bulldozers that followed the excavator made a closure channel so that the water would not gush over the dam. The UZTM safely reached the rocky left bank 3 hours later.

All participants in the operation, which lasted only 6 hours, displayed high professional skill, willpower and self-control. The operation was supervised by Gennadiy Danilov, chief of the Miatlinskaya GES Construction Administration, and Gadzhi Gadzhiyev, chief of the Chirkeygesstroy's Work Mechanization Administration.

9817

CSO: 1822/216

## ELECTRIC POWER

### BRIEFS

**RUNNER FOR SAYANO-SHUSHENSKAYA GES**--The collective of the turbine shop of the Leningrad Metal Plant [metallicheskiy zavod] has fulfilled an important order of hydroelectric power station builders by producing the eighth runner for a regular turbine of the Sayano-Shushenskaya GES. Machining of the runner's upper and lower rims was done by a brigade of vertical boring and turning machine operators under the supervision of B. Kuznetsov. The brigades headed by V. Yermilenko and V. Bobko distinguished themselves in welding work. A check by the Technical Control Division [OTK] has revealed that the quality of seams was excellent. By using progressive technology, the welders used the minimum of time to perform necessary operations and welded all 16 seams at the same speed. [V. Trifonov] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 7 Apr 82 p 1] 9817

**VOLZHSKAYA TETS-2 UNDER CONSTRUCTION**--Construction of the Volzhskaya TETs-2 has begun in the northeastern environs of Volzhskiy. Specialists of the Volgogradgidrostroy's Construction Work Mechanization Administration were the first to arrive here. The brigade of scraper operators headed by V. Merezhevskiy has already processed nearly 300,000 m<sup>3</sup> of soil and has thereby exceeded its plan 1.5 times. Hundreds of piles for building and structure foundations have been driven in. The brigade headed by A. Nikogda is conducting this work ahead of schedule. The new heat and electric power station is called upon to ensure the needs of the city and of its industrial complex, which have been growing annually. The new TETs will be of 265,000 kW capacity. It will be outfitted with the latest equipment and all its industrial processes will be fully automated. The first stage of the TETs-2 will be commissioned in 1984. [A. Bakhtin] [Text] [Moscow STROITELNAYA GAZETA in Russian 7 May 82 p 2] 9817

**NIZHNEKAMSKAYA GES**--Naberezhnyye Chelny (Tatar ASSR), 3. (TASS)--The ninth unit of the Nizhnekamskaya GES has been placed under load. It supplied current to the country's unified power system today. The high industrial readiness of units and the progressive consolidated assembly method have helped assembly workers of the Spetsgidroenergmontazh Trust to conduct work according to a condensed schedule. The specialized brigade headed by S. Slabenko has assembled the stator efficiently by striving to achieve the final result as fast as possible. Construction of the GES is continuing. Assembly workers have maintained the shock pace begun at the start of the five-year plan and will assemble two more units this year. The station's turbines have already generated more than 2 billion kW-hours of electric energy. After all 16 units are commissioned the GES will reach 1,248,000 kW. [Text] [Moscow PRAVDA in Russian 4 Jul 82 p 1] 9817

TOBOLSKAYA TETS--In response to a report by the control post in the weekly's issue No 16, V. Filonyuk, chief of the Soyuzzapsibenergostroy, states: The questions related to accelerating construction of the Tobolskaya TETs have been examined on the spot by P. Falaleyev, first deputy minister of the USSR Ministry of Power and Electrification. The Soyuzzapsibenergostroy has issued an order to make up for the lag and to commission the first power unit during this year's fourth quarter. Constant control over fulfillment of this order has been established. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 26, Jun 82 p 11] 9817

TETS-2 IN LVOV--Pouring of concrete in the foundation of the TETs-2, which is being constructed in the northern environs of Lvov City, has begun. Four power-generating units with an overall capacity of 440 megawatts and two large steam boilers will be assembled. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 28, Jul 82 p 3] 9817

INGURSKAYA-STAVROPOLSKAYA POWERLINE--The brigade of assembly workers headed by D. Tskhadadze has completed work on the Ingurskaya GES-Stavropolskaya GES section, the most difficult section of the LEP-500 powerline. Work has been completed on half of the 610-km line which will supply Inguri energy to the country's power grid next year. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 26, Jun 82 p 3] 9817

BALAKOVSKAYA AES REACTOR--Assembly of reactor structures of the first power-generating unit of 1 million kW capacity has begun in Saratovskaya Oblast. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 25, Jun 82 p 3] 9817

SPANDARYANSKAYA GES CONSTRUCTION--The first cubic meters of soil have been laid in the dam body of the Spandaryanskaya GES, which is under construction on the Vorotan River in Armenia. A large reservoir will be created here by partitioning the mountain river. Its water will be fed via 8-km tunnels to the turbines of the hydroelectric power station. [Text] [Moscow EKONOMICHESKAYA GAZETA No 26, Jun 82 p 3] Construction of the Spandaryanskaya GES--the last stage of the Vorotanskiy cascade being built in the remotest corner of Soviet Armenia--is progressing at a rapid pace in the Zangezurkiy Mountains. The station will supply 157 million kW-hours of electric energy to the Transcaucasian unified power system annually and at the same time will regulate the amount of water reaching the successive stages of the cascade. The irrigated fodder and sowing areas in Sisianskiy Rayon--the largest livestock breeding zone in the republic--will be considerably increased after commissioning of the Spandaryanskaya GES complex. Builders of the hydroelectric power station have been regularly exceeding their norms and working ahead of schedule after assuming a labor watch in honor of the 60th anniversary of founding the USSR. The collective of the station junction sector [uchastok stantsionnogo uzla], which has fulfilled its 5-month plan for construction and installation work by 110 percent, has been achieving the best results in socialist competition. Concreting work on the drainage canal and installation of anchor supports for the power station structure are progressing ahead of schedule. Construction of the station junction will be completed in 1983. The main structure of the station, located on the bank of one of the four man-made seas that are a part of the cascade system, will rise 25 m above the land level. Foundations for two turbines of 38,000 kW each, which will be brought to life by waters of the Vorotan River, have already been laid in its lower section. [Text] [Yerevan KOMMUNIST in Russian 25 Jun 82 p 1] 9817

## PIPELINES

### SOCIALIST COMPETITION SAID TO AID BUILDING OF URENGOY-NOVOPSKOV PIPELINE

Moscow STROITEL'NAYA GAZETA in Russian 25 Apr 82 p 1

[Article: "The Urengoy-Novopskov Pipeline: Promote the 'Workers' Relay'"]

[Text] Implement the 26th CPSU Congress's decisions!

In the last collection of items from the Urengoy-Novopskov gas pipeline (SG [STROITEL'NAYA GAZETA] of 16 April 1982) we told about the effectiveness of the integrated competition of cooperating organizations at the so-called inner circle of the "Workers' Relay"--among Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] subunits. A check has shown that the labor competition will help to strengthen all the operating construction elements, improve mutual relations among them, and raise labor productivity on the line.

Active socialist competition, which energizes the builders' labor creativity, has helped them to seek out reserves for reducing the standard periods for erecting the gas pipeline. The ministry's advanced collectives have come out with an initiative to complete the ministry's linear portion ahead of time, by the 60th anniversary of the forming of the USSR.

But work on the line does not depend just upon Minneftegazstroy. For subunits of many ministries and agencies are taking part in erecting the gas-transport system. Unfortunately, not all of them are included in the integrated competition of the cooperating organizations, and not all of them are carrying out contractual commitments with precision and completeness.

Therefore we have considered it necessary to dedicate this selection of items to the problems of organizing the Workers' Relay among Minneftegazstroy's internal partners.

## Good News

All participants in construction of the Krasnotur'inskaya KS [compressor station] have concluded Workers' Relay agreements.

Erection of the Krasnotur'inskaya Compressor Station was included in the schedule of facilities due for early startup.

The footings under the equipment were prepared here ahead of time. Tyumentransgaz [Tyumen' Association for Gas Transport Systems] subunits delivered the turbine units to the construction project in good time. And A. Serebryakov's brigade from Vostokmetallurgmontazh [Trust for the Installation of Metallurgical Equipment in the Eastern Economic Region] installed them in the designed position in record time.

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\*   \*

The collective of N. Sosnin's operating flowline group from Novosibirsktruboprovodstroy [Novosibirsk Pipeline Construction Trust] completed work on a 42-kilometer section ahead of time.

The success was attained thanks to coordination of the actions of the transport workers, the ditchdiggers and the insulation workers. The client's subunits worked excellently.

Subunits	Task prior to the end of the construction project	Welded into the strand	Laid in the ditch
Glavsibtruboprovodstroy.....	854	656	520
[Main Administration for Pipeline Construction in Siberia]			
Glavvostoktruboprovodstroy.....	1,115	635	535
[Main Administration for Pipeline Construction in the Eastern Economic Region]			
Glavtruboprovodstroy.....	965	725	590
[Main Administration for Pipeline Construction]			
Glavukr neftegazstroy.....	166	107	15
[Main Administration for the Construction of Petroleum and Gas Facilities in the Ukraine]			
Glavyuzhtruboprovodstroy.....	187	127	82
[Main Administration for Pipeline Construction in the Southern Economic Region]			
Soyuzintergazstroy.....	101	85	85
Mingazprom.....	5 km crossing of the Volga		
[Ministry of Gas Industry]		Reservoir has been completed	
Total.....	3,343	2,340	1,832

#### Explanation of the Summary

The reports, "Linear operations have been completed" and "The section of the artery has been blown through," are appearing increasingly frequently in the daily summary of the progress of construction on the Urengoy-Novopskov gas pipeline. In the lead are collectives of Komsomol'sktruboprovodstroy [Komsomol'sk Pipeline Construction Trust], Novosibirsktruboprovodstroy, Soyuzgazspetsstroy [All-Union Trust for the Construction of Special Gas-Industry Facilities], Kuybyshevtruboprovodstroy [Kuybyshev Pipeline Construction Trust] and Mosgaztruboprovodstroy [Moscow Trust for Gas Pipeline Construction].

The biggest laggards on the line continue to be the flowline groups of Glavukr neftegazstroy. While the advanced collectives of, let's say, Kuybyshevtruboprovodstroy concentrate their efforts on a narrow work front and achieve a high pace, Glavukr neftegazstroy literally scatter the available machines and mechanisms

over sections of the route for hundreds of kilometers. As a result, idle time of machinery is frequent and cooperating organizations hamper each other. It is time for the supervisors of the main administration (the chief is S. Kindrat) to apply the advanced workers' experience and to restructure the operation of his flowline groups.

### They Helped...

At the request of the builders of the Ivdel'skaya Compressor Station, Yuzhniigiprogaz [State All-Union Scientific-Research Institute for the Design of Gas Pipelines and Gas-Industry Enterprises in the Southern Economic Region] specialists reworked the design of the frameworks of the KS's buildings. Instead of cast-in-place concrete and a multitude of individual items, they used standardized prefabricated structure.

And Sibkomplektmontazh [Siberian Trust for Supplying Complete Sets of Items to Installing Organizations] workers, who supplied box modules for the compressor stations' subsidiary and auxiliary premises, helped the builders.

And so, thanks to the interdependent organizations, erection of the Ivdel'skaya KS is proceeding greatly ahead of the schedule on the facilities that are due for early startup.

### ...And They Let Others Down

The Syzranka River flows in the path of the gas pipeline builders in Kuybyshevskaya Oblast. It is small but contrary.

Soyuzpodvodgazstroy [All-Union Trust for Underwater Construction of Gas Pipelines] brigades themselves improvised suction dredges. And in 2 months the 700-meter ditch was excavated in the stream channel.

But USSR Minstankoprom [Ministry of Machine Tool and Tool Building Industry] plants did not deliver cast-iron weights on time. The spring flooding has begun and the ditch is being destroyed. Thus, because of the lack of conscientiousness of cooperating organizations, the work of a collective of many individuals has been lost.

### They Disregarded

In July last year First Deputy Minister of USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] A. Babenko signed an order: Glavyuzhuraltyazhstroy [Main Administration for the Construction of Heavy Industry Enterprises in the South Urals] should manufacture 65,000 cubic meters of reinforced-concrete weights for gas pipelines in 1982. Then the chief of Glavyuzhuraltyazhstroy N. Safronov issued an order: the ZhBI [Reinforced Concrete Products] Plant of Magnitostroy [Magnitogorsk Construction Trust] should manufacture 25,000 cubic meters of the weights.

But at the plant itself they decided to produce only 6,000 cubic meters, and in the first quarter they delivered about 1,500 to the pipeline route.

"There are no weights in our plan," explained D. Sak, director of Magnitostroy's ZhBI Plant.

I would like to find out: what did USSR Mintyazhstroy issue the order for?--E. Volovik.

From the Urals to Saratov--from the Scene of Events

Our stringer G. Yerlykov went along the gas pipeline route in accordance with a DISPATCHERSKAYA 'RE' task. We asked him to pay special attention to the complaints of the pipeline route workers and interdependent organizations.

...At 0700 hours the flowline-group chief, Hero of Socialist Labor I. Shaykhutdinov from Tatnefteprovodstroy [Tatarskaya SSR Oil Pipeline Construction Trust], gave the builders specific tasks for the shift, and the vehicles of the rotating-personnel group were hidden behind a wall of timber.

Work on the section goes on around the clock. Quite soon the spring sun will melt the Urals Arctic swamp, and we can come back to lay pipe only with the autumn freezes. That is why the builders are hurrying.

"We still need the steam cleaners for the pipeline layers," complains Shaykhutdinov, as he watches the pipeline insulating and laying machine shroud the pipeline in a black film. But there are no mechanisms, they have been stuck at the ports."

Attention USSR Minmorflot [Ministry of Maritime Fleet] and MPS [Ministry of Railways]:

Heavy equipment for laying trunk gas pipelines has been lying idle at Vladivostok and Nakhodka ports an intolerably long time. Maritime fleet personnel have not been able to ship out some units of it since June of last year.

...At the Perm section of the gas pipeline we went over log roads and soil fill that were hard on vehicles. I involuntarily thought about how difficult vehicle drivers have it.

"It's not simple," agreed B. Vlasyuk, brigade leader of welded-pipe carrier drivers of Novosibirsktruboprovodstroy. "But our lads are aces at their business. It's just that at times they have nothing to drive."

Actually, out of 25 vehicles, fewer than half went out on the pipeline route today. The remainder stood dejectedly, minus axles, transmission distributor boxes and engines because of small malfunctions.

Attention USSR Gossnab and Minavtoprom [Ministry of Automotive Industry]:

Labor productivity on the line is reduced because of idle time of motor vehicles, for which there are not enough spare parts. Many enterprises, such as the Miass Motor-Vehicle Plant and the Kurgan Wheeled-Tractor Plant, are not fulfilling agreements to supply spare parts that were coordinated with them. When will they pay their debt to the trunk gas pipeline builders?



...We got to certain sections of the line by helicopter because of the bad roads of springtime. From above, the gas pipeline's trace and the compact compressor station structures are clearly visible.

However, faulty work also is seen well from above. Thus, near the channel of the Sylva River, where the construction workers laid pipe at a rapid pace in the winter, we observed gaps in the pipeline at flooded places. The fact is, the specialists explained, that the Salavat Machinebuilding Plant of Minkhimmash [Ministry of Chemical and Petroleum Machine Building] did not turn scraper traps over for installation.

Attention Machinebuilders and USSR Minchermet [Ministry of Ferrous Metallurgy]:

The blow-through and test of finished gas pipeline sections are being hampered and the erection of compressor stations is lagging because of a lack of equipment and metal. Minchermet enterprises sent less than 70 percent of the metal to the pipeline route during the first quarter.

...The flat country of Saratovskaya Oblast had shed its snow cover, and the still damp ground strongly gripped the wheels of the all-terrain vehicle. We spent more than an hour and a half with M. Kulenkov's insulators' brigade from Ukrvostokneftegazstroy [Trust for the Construction of Oil and Gas Enterprises in the Eastern Ukraine] in conquering a score of kilometers of the route's haul road. The construction workers were apprehensive that the shift would be delayed. But their haste was in vain.

At the work section, Ukrtruboprovodstroy's excavators, which can take 1,200 cubic meters of soil from the ditch, were inactive.

"We are sitting without fuel," superintendent A. Gurik explained the situation, "the stocks are gone."

Attention RSFSR Goskomnefteprodukt [State Committee for Supply of Petroleum Product]:

Fuel consumption rises sharply during certain months of the year. But it is delivered to the pipeline route at uniform rates. Moreover, the construction workers have committed themselves to complete the linear portion of the Urengoy-Novopskov pipeline 4 months ahead of the deadline. But these commitments cannot be carried out unless the pipeline workers are provided with fuel.

...Obviously, not by far have all the complaints of the pipeline workers against the cooperating organizations been enumerated completely in these notes. But even those cited indicate that not by far do all participants in erection of the gas-transporting system act in accordance with the Workers' Relay principle.

#### An Invitation to Take Part

Construction of the trunk gas pipelines is going on ahead of schedule, and the credit for this goes not only to the pipeline-route workers but also to the cooperating organizations.

But, as a whole, the reserves for accelerating the work that the integrated competition of interdependent agencies offers still are not being used completely by far. Only by eliminating delays in the manufacture of constructional structure, materials and equipment and in the delivery thereof to the line can it be assured that the commitment to introduce the linear portion of the Urengoy-Novopskov gas pipeline ahead of schedule, by the 60th anniversary of the forming of the USSR, will be carried out.

Participation in the Workers' Relay is the duty of all who participate in erection of the gas-transport system.--The Industrial Construction Section.

11409

CSO: 1822/225

## PIPELINES

### QUALITY IN CONSTRUCTION OF URENGOY-NOVOPSKOV GAS PIPELINE STRESSED

Moscow STROITEL'NAYA GAZETA in Russian 14 May 82 p 1

[Article: "Greater Attention to Work Quality"]

[Text] High quality of construction is not simply an indicator of high skill and professionalism. It also means speedup of the work, a guarantee of the most rapid assimilation of a facility's designed capacity, and stable operation thereof.

The latter is especially important when building transcontinental trunk gas pipelines. For a day of downtime on a 1,420-mm diameter gas pipeline will deprive both the East Ukraine and North Caucasus areas of fuel.

The recently adopted CPSU Central Committee decree, "On the Work by Ministry of Construction of Petroleum and Gas Industry Enterprises on Reequipping and on the Introduction of Progressive Construction Work Methods," pointed to the need to raise further the quality of the work done.

In the selection of material being published, we tell how Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] collectives are solving this problem.

#### The Last Meter Has Been Laid (a Telegram to the Paper)

The collective of Petropavlovsk SMU-4 [Construction and Installing Administration No 4] of Uralneftegazstroy [Urals Trust for the Construction of Oil and Gas Industry Enterprises] has laid the last meter of pipe on its section of the Urengoy-Novopskov gas pipeline. This will enable the section to be turned over not in the third quarter, as was called for by the socialist commitments in honor of the 60th anniversary of the forming of the USSR, but much earlier.

The pipeline-route workers' work was accepted with a "good" evaluation.

--L. Vlasov

## Monitoring and Still More Monitoring

Our correspondent met A. Boyarinov, chief of the State Inspectorate for Construction Quality of Minneftegazstroy, and asked him to answer a few questions.

[Question] The CPSU Central Committee decree about Minneftegazstroy's work notes that, together with the ministry's many achievements, work quality during erection of the gas pipelines is being raised slowly. How can you explain this situation?

[Answer] There are many causes. But the chief one is conversion to the construction of high-pressure trunk gas pipelines, which are unique in capacity and length, under the complicated conditions of the Far North and West Siberia. The work here requires a new and higher level of quality, for which some subunits, it turns out, are not prepared. That is why we have worked out and are introducing in accelerated fashion a comprehensive scientific-production program.

The new quality-control system has already passed a check in subunits of Glavsibtruboprovodstroy [Main Administration for Pipeline Construction in Siberia], Glavtyumenneftegazstroy [Main Administration for the Construction of Oil and Gas Industry Enterprises in Tyumenskaya Oblast], and other main administrations. Its basis is integrated standardization. And already there are encouraging results: the main administrations named have cut the number of defects in the final construction product in half.

Right now 8 state standards, 30 branch standards, 119 specifications and more than 200 other standardizing documents which determine construction-quality requirements have been worked out and introduced. Such a unified approach to the problem will help to raise sharply the gas pipeline's quality factor.

[Question] Was a special-purpose program to increase the extent of technical equipping of the monitoring services called for?

[Answer] Of course. Minneftegazstroy plants arranged to provide automatic laboratories for monitoring erection-welding operations, semistationary LIP-1 installations for monitoring insulation-coating quality and other innovations. Right now more than 80 percent of the welded joints are being checked, and, on specially complicated sections of the line, a full 100 percent.

But still there are not enough of many types of instruments. The trouble is that Minneftegazstroy does not have the capacity to produce them in large series, and the appropriate ministries that could do this, as the CPSU Central Committee decree emphasized, incidentally, are not moving to accommodate us.

[Question] What is being done to prevent defects and violations of existing quality standards?

[Answer] State Inspectorate workers understand that it is of little use if we merely record violations. Our paramount task is prevention.

Because of this, and by way of experiment, we are now organizing at the Urengoy-Uzhgorod gas pipeline sections that are being laid by Glavtruboprovodstroy subunits "patron-monitor" services under the regional construction-quality inspectorates, which are not dependent upon the main administrations.

I want to say in conclusion that the measures being introduced and those contemplated will enable pipeline-route workers to turn over for operation up to 98 per cent of the pipelines with quality evaluations that are high.

#### The Situation on the Section...

The rain poured down for days at a time, with few interruptions. It would have been possible, of course, to go to the housing settlement on the pipeline route that had been put up by local efforts instead of sitting in the close confines of the rotating-personnel vehicle. But in the mechanized insulating and pipelaying column of Hero of Socialist Labor V. Tsvetkov of Mosgazprovodstroy [Moscow Gas Pipeline Construction Trust], as soon as the sun peeks through the storm clouds the pipeline workers throng like ants around the pipe, between the heating stove and the insulating machine, rubbing the pipe over with old rags and drying it with blow torches.

This is unproductive? Of course. But only a dry pipe can be insulated.

This day, V. Tsvetkov's column performed the labor-intensive operation several times.

On returning to the settlement, the pipeline workers were gloomy and dissatisfied: they had done less than usual, yet they were extraordinarily tired.

But was it only the weather that was at fault for the fact that the shift had gone unsuccessfully?

#### ...And Its Explanation

By engineering-surveillance inspector of the Saratov Section of Orgenergogaz Yu. Rudnev:

"I know Tsvetkov's column and I can believe that they have brought responsible people here. But there are hundreds of columns in the branch, and each day each one faces the dilemma: whether to prepare properly these unlucky 30-meter pipes, expending tens of man-hours, or to start up the machine and close one's eyes to the defects. Unfortunately, not everywhere are they still making a choice in favor of quality.

"And meanwhile, a long time ago a special mechanism was devised and it was designed precisely for heating this piece of pipe. But Minneftegazstroy has not managed to arrange for serial production of it. Right now there are only a handful of these units in the industry. Both labor productivity on the route and the longevity and reliability of the gas pipeline depend upon them."

#### Erection of the Urengoy-Novopskov Gas Pipeline (Work Progress as of 13 May 1982)

Subunits	Task prior to the end of the construction project	Welded into the strand	Laid in the trench
Glavsibtruboprovodstroy.....	854	680	555
[Main Administration for Pipeline Construction in Siberia]			
Glavvostoktruboprovodstroy.....	1,115	650	580
[Main Administration for Pipeline Construction in the Eastern Economic Region]			

[table continued]

Subunits	Task prior to the end of the construction project	Welded into the strand	Laid in the trench
Glavtruboprovodstroy.....	965	760	640
[Main Administration for Pipeline Construction]			
Glavukrneftegazstroy.....	166	110	16
[Main Administration for the Construction of Oil and Gas Industry Enterprises in the Ukraine]			
Glavyuzhtruboprovodstroy.....	137	128	94
[Main Administration for Pipeline Construction in the Southern Economic Region]			
Soyuzintergazstroy.....	101	85	85
Mingazprom.....	5 kilometer	crossing of the	
[Ministry of Gas Industry]		Volga reservoir has been completed	
Total.....	3,343	2,413	1,950

#### Explanation of the Summary

In the last two weeks the work pace on the line slowed appreciably. Only two trusts--Bryansk Pipeline Construction Trust and Voronezh Pipeline Construction Trust--coped with the plan tasks.

Of course the spring flooding came and there were frequent rains, which prevented the insulation and laying of pipe. But they were not the only things. The main factors were that labor discipline was reduced, and many brigades came onto rotational duty not fully manned. Therefore, organizational supervisors and public organizations must draw the necessary conclusions and make up in the shortest possible time for what has been left undone.

#### To Build Reliably Means:

1. Raise operating sophistication and introduce progressive ways and methods of working, manager P. Shabanov of Severotruboprovodstroy [Northern Pipeline Construction Trust] considers:

"Our trust's collective was the winner in the All-Union Inspection Contest for the best quality of construction, and it was awarded the USSR Gosstroy Diploma, First Degree. All facilities were turned over with 'good' evaluations during the 1981-1982 season.

"The collective was committed to this result primarily because it was the first in the branch to create operating flowline groups. Answering completely for the final product, they strive to work not only with high productivity but also with high quality. As a consequence, many insulating and pipelaying columns and large welding and installing brigades have outpaced the 130-kilometer goal for annual productivity during construction of the 1,420-mm diameter pipeline. Among them are the collectives supervised by V. Madenov and V. Volkov, the brigades of B. Diduk and V. Kostyrev, and other collectives.

"Of course, there are also deficiencies. But with centralization of the monitoring service at the trust level and improvement of the existing quality control system, we shall be able to operate both more productively and with better quality."

2. Increase factory preparation of the items and equipment sent to the pipeline route, flowline-group chief B. Kushka of Soguzgazspetsstroy [All-Union Trust for the Construction of Special Gas-Industry Facilities] considers:

"Several kilometers of factory-insulated pipe have arrived at our segment (of almost 100 kilometers) of the Urengoy-Novopskov gas pipeline. And how they have helped us on swampy sections and at river channels! Operations there were completed even more rapidly than at more convenient places.

"Labor productivity has risen severalfold, its quality has increased and insulating machines have been released.

"The shipment of equipment in sectional modules has given great benefit, to the best of my knowledge, during the erection of compressor stations and gas-treatment installations.

"Therefore we, the pipeline workers, call upon the plants--the makers of pipe and equipment--to respond in businesslike fashion to the CPSU Central Committee decree and to send us output with more factory preparation."

3. Approach the job creatively and with initiative and develop socialist competition, asserts I. Kuznetsov, chief of SUMR-3 [Special Administration for Mechanized Operations No 3] of the Transcaucasus Construction Administration:

"In our administration, even the brigades with the highest labor productivity never take prize places in the competition if there are complaints about the quality of their work. This increases the responsibility of the welders and other workers, and it forces them to seek out reserves not only for speeding up the work but also for raising its soundness.

"Here is one case. In V. Balashov's brigade of advanced welders, the monitoring service suddenly began to reject one joint after another.

"What was the matter? It was explained that the brigade had increased the pace of welding with electrodes with shielded-arc coating. And thereby violated the well-known proportion in the strength of the current, the voltage and the joint's 'pattern.' The pipeline workers had to return to the former pace.

"But welders are creative people. After spending several evenings on calculations, they again increased welding speed. And the test joints passed the check successfully.

"Thus the workers' initiative and responsibility again brought them into leadership in the competition, and the reliability of their work increased."

In the Full Amount--an Official Reply

An item, "Prenebregli" [They Disregarded], was included in a collection of information about progress in erecting gas pipelines in SOTSIALISTICHESKAYA GAZETA of 25 April 1982. It stated that USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] had ordered Glavyuzhuralstroy [Main Administration for Construction in the South Urals] to send 65,000 cubic meters of weights to Minneftegazstroy for the Urengoy-Novopskov gas pipeline. However, the main administration

and its subunits, particularly the Magnitogorsk ZhBI [Reinforced-Concrete Articles] Plant, not showing a responsible attitude toward the order, arbitrarily reduced the plan for the production of these articles, which are most important for the route.

N. Bievets, USSR Mintyazhstroy board member, has reported to the editorial board that the ministry has confirmed its order to Glavyuzhuralstroy, and the main administration is taking measures for the timely delivery of reinforced-concrete weights to the pipeline route in the full amount.

11409

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## PIPELINES

### DEVELOPMENTS IN URENGOY-UZHGOROD GAS PIPELINE CONSTRUCTION REPORTED

Moscow IZVESTIYA in Russian 4 Jul 82 p 2

[Article: "We Shall Introduce the Gas Pipelines Ahead of Schedule!"]

[Text] Thousands of production, scientific, design, transport and construction collectives have been included in the socialist competition under the Workers' Relay principle to erect transcontinental arterials ahead of schedule.

#### Labor Collaboration

Novgorod....How many architectural attractions, how many monuments to domestic history this ancient city preserves! And although the building of an industrial station for a line administration of a trunk gas pipeline alongside them seems quite unremarkable, the attention of many people are riveted on it right now. And that which occurs within it is in no small degree connected with major events of modern history. Here, at the Novgorod station, tests are being conducted of a prototype of the world's largest gas repumping unit, which was created by Soviet scientists and specialists.

And so they held the Novgorod tests of the newest gas repumping installations. Right now, as this report is being written, the integrated check and refinement of the design of the continuous-flow portion has been completed. The machine has been operated under a heavy load....

/And now the results of the Novgorod tests, which have already been received, indicate that the promising machine for gas repumping, which was manufactured in Leningrad, has justified the hopes of its creators. [in boldface]/

In the collective of many thousands of persons of the Nevskiy Plant Association imeni V. I. Lenin (NZL), there is today, perhaps, no person who does not know about the merits and advantages of the "twenty-fiver." Much has been said and written about it. In department No 8, where L. Babukov's brigade assembled the first three GTN-25 units, a placard has been hung which states that each "twenty-fiver" will give the country an economic benefit of a million rubles. True, the specialists consider that it is more than a million. But they are optimists. But even a

million, you will agree, is not small. And just what are the advantages, anyway, of the new installation?

Here they are. /Surpassing the "tenner" in turbine capacity 2½-fold, the GTN-25's weight is approximately the same. And still we obtain not only a reduction in the machine's specific metal intensiveness: the amount of construction and installing work during erection of the compressor station will be reduced by more than half. [in boldface]/ By the same token, construction time also is reduced. Moreover, the new machine has been designed for use with large-diameter pipe. A promising scheme, which enables the power unit's capacity to be brought up to 40,000 and even 60,000 kilowatts, has been incorporated in its design. /The production of units of various modifications--for the creation of working pressures of 75 and 100 atmospheres--has been called for. The machine is supplied with automation to the maximum. [in boldface]/

Today there is no task more urgent for industrial Leningrad than to organize series production of the GTN-25. More than 130 of the new machines are to be manufactured in some 3 years.

"These goals are linked with the work of not just one collective of the Nevskiy Zavod Association," says manager of the Heavy Industry Division of the Leningrad Oblast Party Committee S. Petrov. "For along with it, the Leningrad Metals Plant will produce the GTN-25, and many enterprises, as well as the Izhorskiy Zavod Association and the Zavsa Turbine Blades Association, should provide it with outfitting items. Specialists of research and industrial design institutes are resolving a number of questions. Much should still be done also by the builders, so that they will turn over on time the facilities that are due for early startup--facilities that are intended to support the "twenty-fiver's" serial production. In brief, in order that nothing will be overlooked in solving the diverse tasks and problems, /in accordance with the well-known example of the participants in erection of the Sayano-Shushenskaya GES, more than 30 enterprises and organizations in Leningrad have adopted joint socialist commitments about creative collaboration in preparing for the production and in providing for the series output of GTN-25 units. [in boldface]/

Yes, the great job has been started, and strenuous work will have to be accomplished for the sake of it. Chief of the NZL's Mechanical Assembly Production Department Yu. Ust'kachintsev considered that some departments of the prime plant, because of series manufacture of the "twenty-fiver"--and GTK-10 output will still be going on full blast, should increase output volume in 1 year by 28-30 percent. A remarkable pace!

The operational services of the enterprise have engaged in studies of ways to reduce labor intensiveness of the parts. For example, in the hot-pressworking department, blanks for turbine disks for the "tenner" have been forged. For the new machine, in order to eliminate roughing, to avoid the conversion of expensive high-alloy steel into chips, they decided to stamp out the disks. It was proposed that a test stamping be conducted by the brigade under S. Vlasov, who is an outstanding expert in his business. After Vlasov, other brigades began to do stamping work.

During assembly of the last GTN-25 test machine, we asked brigade leader L. Babukov whether the great plan for producing the "twenty-fiver" disturbed him. For while he did not manage to assemble the machine in less than 4 months, during series output it will be necessary to speed up the pace.

"The 'tenner' also at one time increased the bother for us. At first things went slowly," Leonid Dmitriyevich remarked. "But now it is like making pancakes. We can do it with our eyes closed. It will be the same with the 'twenty-fiver.'"

The most well-known turbine-producing firm--LMZ [Leningrad Metals Plant]--in collaboration with NZL previously arranged for the output of the GTK-10 gas repumping turbine units. This coincides, incidentally, with a step in expanding its production capacity, which was important for the association's history. The fact is that the old site at Vyborg was becoming too crowded for the Leningrad Metals Plant, and for several recent years the building of a branch of it, which has just received the designation "Turboatomgaz," had been rising up in the new suburban rayon of Devyatkinno, not far from the Severnaya TETs.

And then the Turboatomgaz building for gas turbines, which was turned over for operation 1½ years ago, took upon itself part of the program for producing the GTK-10.

The metalworkers are manufacturing "twenty-fivers" in departments at the old site, in accordance with the ordinary technology that was adopted. But later, at the LMZ, the Nevskiy Plant is to overtake it in GTN-25 output. /There and then also the time will come for Turboatomgaz to have its important say. For even now, for production of the "twenty-fiver," a promising technology has been developed here which calls for use of the newest highly productive equipment and, through this, a halving of labor expenditure! [in boldface]/

A housing settlement area for the workers and specialists will be built close to the new plant. The designers are viewing it precisely as a settlement--with the necessary kindergartens, domestic amenities and social institutions. But though this is the earliest one, it is, still, in the long term. But solve today's tasks today. Their feasibility is supported primarily by worker resoluteness, by the skill of the Leningraders. As Sergey Fedorovich Vlasov expressed it, "this was not seen everywhere--we are coping with it."

Commitments were adopted at a meeting of the Nevskiy Plant collective to yield two more GTN-25 machines in 1983 than planned.

### The Speedup

Housewarmings are being held on a large scale on the pipeline route where the Urengoy-Uzhgorod export gas pipeline is being built. One after another, new field settlements are being occupied which spread out in a chain on the lands of autonomous republics of the Volga and Central Chernozem regions, the Ukraine and steep Carpathian slopes.

We intentionally began our reporting with the story about the field settlements. Excellent living conditions are a guarantee of high labor productivity. This principle was confirmed anew when the results of the branch's contest for the best pipeline-route settlement were summed up.

...On that section, like everywhere on the route, they were the first to greet the cooks in the field dining room at dawn. And it is still Diduk. More precisely, his whole brigade. Year after year the brigade steps from record to record.

The first record of 120 kilometers welded "into the strand" in a winter was achieved back on the Urengoy-Chelyabinsk gas pipeline. On the next route--Urengoy-Gryazovets-Moscow, he broke this by 5 kilometers in the competition for a worthy greeting to the 26th CPSU Congress. Then on the Urengoy-Petrovsk gas pipeline he brought it up to 130 kilometers. And now, in honor of the 60th anniversary of the forming of the USSR, he is approaching 150 kilometers.

And so it is a routine pipeline-route morning for Diduk's brigade. Ahead, as far as one can see, is the unsteady log road of the cut, raised up by muddy posts, on the log layer of which heavy pipeline layers pass with a loud roar.

The brigade leader holds a small hammer with a long handle. Like the railroaders' hammer with which wheel pairs are tapped at train stops. The sound from the blow on the pipe's thick wall outdoes the roar of the machinery and the crackling of the welders' arcs.

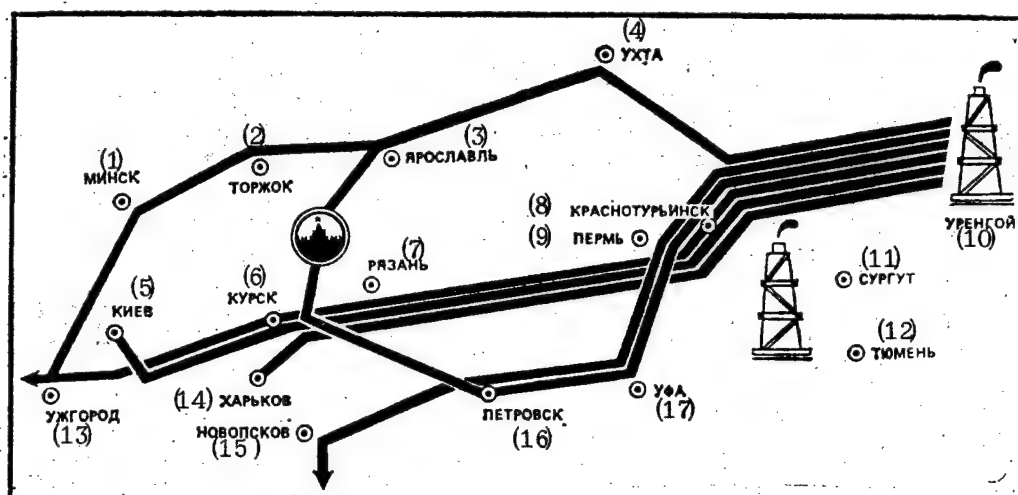
Diduk's brigade proposed many new organizational and operational improvements. Take, for example, the automated mobile power-supply system created here. In enabled diesel operators to be hooked in for subsidiary operations during welding and installing work.

The branch's thousands of toilers who are involved in the labor drive in honor of the 60th anniversary of the forming of the USSR are striving to do shock work these days. It is the constant innovators' searching and mastery of the experience of advanced workers that have enabled the Minneftegazstroy collectives to carry out successfully their commitments on the route of the central construction project of the second five-year plan--the Urengoy-Novopskov gas pipeline.

/Let us recall that, of the six trunk gas pipelines that are being erected during the current five-year plan, the first--from Urengoy to Moscow--was put into operation at design capacity ahead of time. The second--from West Siberia to Petrovsk--also was built ahead of time and will come up to design capacity in the near future. Now in line are the Urengoy-Novopskov and Urengoy-Uzhgorod lines, where the work again is going on well ahead of the schedule. [in boldface]/

"And although there are still many things ahead, and not everywhere is the schedule for construction and installing work being met ahead of time, the builders' success is indubitable," says the ministry's party committee secretary I. Zayonchkovskiy. "This has enabled the advanced collectives of Glavtruboprovodstroy [Main Administration for Pipeline Construction], Glavsibtruboprovodstroy [Main Administration for Pipeline Construction in Siberia], and Glavzapsibzhilstroy [Main Administration for Housing Construction in West Siberia], and the integrated flowline group of the Transcaucasus Pipeline Construction Administration to come out with a valuable initiative--to promote competition for introducing a whole transcontinental trunk pipeline ahead of time, substantially in advance of the state plan."

Thus, Glavtruboprovodstroy resolved to provide for putting into operation ahead of time 880 kilometers of the Urengoy-Novopskov segment that had been assigned to them, and also to complete the main linear operations on a 790-kilometer segment of the Urengoy-Uzhgorod gas pipeline by the 60th anniversary of the forming of the USSR. It was resolved throughout the branch as a whole to finish construction of the linear portion of the Urengoy-Novopskov gas pipeline completely and to lay at least 1,500 kilometers of the Urengoy-Uzhgorod gas pipeline by that anniversary.



Key:

1. Minsk.	6. Kursk.	11. Surgut.	16. Petrovsk.
2. Torzhok.	7. Ryazan'.	12. Tyumen'.	17. Ufa.
3. Yaroslavl'.	8. Krasnotur'insk.	13. Uzhgorod.	
4. Ukhta.	9. Perm'.	14. Khar'kov.	
5. Kiev.	10. Urengoy.	15. Novopskov.	

Construction of the Urengoy-Uzhgorod gas pipeline is still only being developed, but there are so many new, even unique machines, that we managed to see there! This pipeline will hold the record in the degree to which it is equipped with new machinery and mechanisms. Primarily through automatic electrical resistance welding, since five more of the celebrated Sever-1 and Styk complexes are being added to those unique units that are already operating on the Urengoy-Uzhgorod trunk line.

This "parade" of technical innovations could continue for a long time. Here also are the newest bases for rotary welding, and also the latest kinds of suction dredges, excavators and ditch diggers, and also such innovations as mobile dental surgeons' offices and prefabricated premises for swimming pools.

The staffs that have been created on the pipeline routes, as well as those created under the ministry's party committee, which are working jointly with local soviet and social organizations, are promoting massiveness of scale of the competition and its success. A firm policy for the most rapid welding of the "red joints," which signify completion of the work on the pipelines, has been taken.

#### News from the Pipeline Routes

Novyy Urengoy. The master plan for the construction of Novyy Urengoy, which was developed in the Leningrad Institute for Standard and Experimental Design of Housing and Public Buildings, is being carried out successfully. In the southern tract alone nine microrayons have been sited. Each is to have schools, stores, kindergartens and cultural and sports palaces. A meeting of builders which was convened enthusiastically supported the appeal of the Leningraders to their interdependent organizations to speed up construction of the Urengoy-Uzhgorod gas pipeline.

Kursk. A settlement made up of mobile field housing has grown up alongside the Okhochevka Railroad Yard of Shchigrovskiy Rayon. A pipeline-route base has been developed here for Krasnodartruboprovodstroy [Krasnodar Pipeline Construction Trust]. Its collective, after successfully completing erection of the Yelets-Kursk arterial, is now working on the Kursk Section of the Urengoy-Uzhgorod gas pipeline. At a meeting that was held in response to the discriminatory measures of the Reagan administration, it was decided to support the appeal of the Leningrad machinebuilders to speed up the work pace.

Vinnitsa. The contours of the construction site of the Il'inetska Compressor Station on the Urengoy-Uzhgorod gas pipeline have now been clearly delineated. Turbines will be installed here that are twice as powerful as those used on the Soyuz gas pipeline. The operations are going on full blast: foundation pits for footings for storage facilities are being dug, and reinforced concrete is being laid. The appeal of the Leningraders has found unanimous support at builders' meetings and assemblies.

Mukachevo. A rayon staff for construction has been established at Mukachevo. It is under rayon ispolkom chairman P. Serbin. Just as the Leningrad machinebuilders recommended, the staff will be a center for the integrated competition for interdependent workers under the Workers' Relay principle.

Ufa. Another 55 kilometers of the Urengoy-Novopskov gas pipeline were laid during the week by Glavvostoktruboprovodstroy [Main Administration for Pipeline Construction in the Eastern Economic Region] subunits. Tests with gas under pressure will be conducted soon on a 288-kilometer section of the line.

Tyumen'. On the route of the Urengoy-Novopskov gas pipeline, the best brigade of earthmovers of Hero of Socialist Labor Ya. Myakush held a meeting of protest against the discriminatory measures of the USA administration. The earthmovers decided to speed up the work.

Published by IZVESTIYA

A brochure has been published under the heading, "Gaz--Truby" [Gas Means Pipes]. The Story of the Central Construction Project of the Five-Year Plan," by the IZVESTIYA publishing house. It includes an interview with the USSR Ministry for Construction of Petroleum and Gas Industry Enterprises B. Ye. Shcherbina, journalists' reporting and essays about progress in erecting the six largest trunk gas pipelines and the production of domestic high-capacity equipment, many figures and much factual data, readers' letters to the newspaper, and various illustrations.

#### Power Equipment Arrives

You rarely encounter as many underground trunk transport pipelines as those that have already been laid out in the lands of the Ukraine's western oblasts. And here is a new construction project. Here the route of the export trunk pipeline for the "blue fuel", which has its start at far-off Urengoy, has been laid. Collectives and many local plants have become active participants in laying it. Workers of the enterprises tell about their contribution to the overall job.

Uzhgorod. "It is symbolic to some degree that our plant has arisen alongside the border, which is crossed by steel strands for oil and gas," says director of the experimental plant for gas-transporting pipeline installations B. Tlekhas. "Well, what our departments have been creating can already be seen at the compressor stations of the pipelines that count their kilometers from Urengoy. I have in mind the installations for repumping gas with a marine turbine engine. It is certain that the route will be laid in a short time, despite the obstacles that the USA administration is imposing."

L'vov. "The order that we are talking about," said V. Kovernikov, director of the L'vov Pribor Plant, "was honorable and complicated. It was to master equipment that had never been produced before. Its purpose: to monitor and to record parameters and to furnish the required regimes to the compressor-station units, and, in case of necessity, to stop them."

"There was no free production space, but we still found a place for a newly organized department. This is so the American sanctions will not stop us in any way. We shall build everything for ourselves."

Chernovtsy. "Our enterprise is already participating with its output, but not for the first year, in the development of West Siberia's oil and gas fields," emphasized deputy director of the machinebuilding plant, I. Zaytsev. "But yet each new order inspires labor cheerfulness. The units that we produce are needed by the compressor stations on the pipeline routes. These include separators for scrubbing the natural fuel of various particles. And heat exchangers that regulate the temperature of the gas. We give the builders everything on time, to enable the lines to be introduced ahead of schedule."

11409

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## PIPELINE

### CONSTRUCTION BEGUN ON CARPATHIAN SEGMENT OF URENGOY-UZHGOROD PIPELINE

Kiev RABOCHAYA GAZETA in Russian 7 Apr 82 p 1

[Article: "The Trunkline Heads Into the Mountains"]

[Text] The first kilometer of pipes has been welded on the western section of the Urengoy-Uzhgorod gas pipeline which was named at the November (1981) plenum of the CPSU Central Committee as one of the central construction sites of the five-year plan. The specialists of the all-union association "Soyuzintergazstroy" have started laying the most difficult mountainous section of the route, from the future compressor station in Bogorodchany to the Transcarpathian settlement of Volovets.

Seven-ton pipes were welded on racks in 23-meter sections. After radiological analysis of the scenes, powerful trucks transported and laid them along the route. This organization made it possible to more than double the welding operations.

Taking into consideration the experimental operation of gas pipelines in the Transcarpathians, it has been decided to make the new trunkline on the watershed, that is, on the mountain crests. This will increase its reliability and will exclude the danger of slides and floods, however it will complicate the work. The route will have to be laid at a great height, on steep slopes, overcome rivers and abysses, and dozens of underground and air crossings will have to be constructed. In order not to disrupt the ecological balance of the Carpathian region, measures have been taken for environmental protection.

Powerful equipment and experienced specialists are coming to the Transcarpathians from the construction of the Urengoy-Novopskov and Ostara-Izobil'noye gas pipelines where work was completed ahead of schedule. The settlement of builders is growing. Over 500 people will soon be living there. Ukrainians and Armenians, Russians and Georgians, Belorussians and Tatars and representatives of other nationalities are working side by side in a friendly collective. By the anniversary of the formation of the USSR they have been obliged to complete the main construction-installation work on the most complicated sections of the route.

Ivano-Frankovsk. (correspondent of RABOCHAYA GAZETA). The office of the Ivano-Frankovsk Oblast party committee has set up headquarters on the section for



building the export gas pipeline Urengoy-Uzhgorod. The second secretary of the party obkom P. T. Barchuk will supervise its operation.

The especially important coordination center of the construction site has been called upon to foster an increase in construction rates of the gas trunkline, rapidly solve complicated questions, and eliminate discrepancies developing during the work. The task of the collectives in the production association "Prikarpattransgaz" of the Transcaucasus administration for construction of pipelines of the all-union production association "Soyuzintergazstroy" is complicated and responsible, to bring the daily route to 800 meters.

Precisely this rate will permit the traversal of one of the most difficult sections of the gas pipeline, the Carpathian, in optimal periods.

9035

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## PIPELINES

### MAIN FACTORS THAT HOLD UP SIBERIAN PIPELINE ERECTION NAMED

Moscow SOVETSKAYA ROSSIYA in Russian 3 Jun 82 p 1

[Article by G. N. Sudobin, deputy minister for Construction of Petroleum and Gas Industry Enterprises: "The Gas Arterials--an Economic Review"]

[Text] I often must visit the long-distance gas pipeline routes, and I meet erectors and builders. Each such meeting, even a brief one face-to-face, is remembered for a long time and causes me to reflect a bit. And so I would like to share thoughts about how what is perhaps the national economy's youngest industry happened to be established and about the problems that it faces. The CPSU Central Committee decree, "On the Work of the Ministry of Construction of Petroleum and Gas Industry Enterprises to Reequip Itself and to Introduce Progressive Methods of Construction Operations," is stimulating in this regard.

I recall that historically it has so happened that the principal energy-consuming and chemical enterprises have been located in the European part of the country and in the Urals. At the same time, our main fuel-and-power base has now shifted to areas of Siberia. So rapid growth in the recovery of Siberian gas and the transporting of it to the European region is a paramount economic and political task. Such a strategy is explicable. Gas is now being used in the production of more than nine-tenths of all the steel, cast iron and mineral fertilizer and about two-thirds of the cement and in the generation of a substantial proportion of the electricity. About 200 million Soviet people use gas for household purposes.

An enormous saving of human labor, people's comfort and preservation of the ecological equilibrium--all these have become possible thanks to a great extent to the labor of the collectives that have been entrusted with developing domestic fuel and energy engineering, the main strategic raw material for which today is natural gas. Back at the dawn of Soviet power V. I. Lenin pointed out: the strong organization of the huge industry upon which a socialist society can be founded is possible only on the basis of mineral fuels.

The trend toward a further acceleration in development of the gas industry in general and in the creation of superpowerful arterials in particular has also been reflected in the 11th Five-Year Plan. Up to 640 billion cubic meters of gas are to be recovered by the end of the five-year period. West Siberia will produce the main portion of it. This fact shows the scale of the operations that are to be performed there: development of the Urengoy field alone will require capital investment equal to the expenditures for the erection of all gas industry facilities in West Siberia during the 10th Five-Year Plan.

Altogether, six gas pipeline giants will be laid and introduced into operation from the Urengoy region alone. These are centrally monitored construction projects of the five-year plan. Compressor stations numbering 174 with 10 million kilowatts of power are to be erected on just the trunk lines that will have their start in Urengoy.

An analysis by scientists and specialists has indicated that the power, supply and equipment resources that have been concentrated at Urengoy will enable gas recovery there to be brought up to 250 billion cubic meters per year by the end of the five-year plan. But the operating program is not exhausted by this large-scale task alone. In order that gas recovery from West Siberia's ground may be brought up to 330-370 billion cubic meters by the end of the five-year plan, our ministry's organizations must erect quickly at the gas fields a large number of integrated gas treatment installations for long-distance transport. Each of these is a huge plant at which complicated industrial equipment is installed.

For the first time in world practice, the country has begun to lay gas pipelines made of large-diameter pipe that is intended for high pressures. These will become the main arterials for the exit of large streams of natural gas from West Siberia. More than 15,000 kilometers of them will operate. Each arterial will carry more energy than is generated by the power stations of the Angara and Yenisey put together. Engineering structures of this type just 1,000 kilometers in length require major expenditures.

Thus the 1970's became a turning point in the development of pipeline transport, which has been made an independent branch of the national economy. Right now a unified gas-supply system is in operation in the country. Pipeline transport today ships more than two-thirds of the fuel recovered. Its share in the country's freight turnover also has grown. It has approached 30 percent.

The cost, the materials consumption, and the work volume are colossal. Expenditures just for building the six trunk gas pipelines will exceed the cost of building the BAM [Baykal-Amur Mainline], the KamAZ [Kama Motor-Vehicle Plant], the Volga Motor-Vehicle Plant and Atomash combined. And it is clear that it will not be easy for the old methods and former ways for managing the branch and the former principles for mutual relations of all elements of the fuel-and-power complex to cope with the tasks established. Improvement of the economic mechanism should be not "cosmetic" but profound, aimed at obtaining a high final result with more efficient methods.

Indisputably, it is our ministry's collectives that are to resolve the main tasks entrusted by the Central Committee decree. Integrated scientific and production programs have been worked out. They spell out in detail the methods for building gas pipelines and industrial facilities that are based upon modern scientific and technical achievements. The USSR Academy of Sciences and its local branches and divisions and the design-development bureaus and design institutes of many branches of the national economy will participate in implementing these programs. The program for the collectives' social development has been singled out especially.

One of the paramount problems is the wide introduction of flowline methods for organizing construction on the pipeline routes. The ministry recently issued an order about organizing the operations of integrated cost-accounting industrial-type flowline groups. They are being established everywhere today. But the assistance of

USSR Gosskomtrud [State Committee for Labor and Social Problems] is needed here. It should regularize the system of pay for line engineers, to motivate them toward the rapid achievement of high final results of the work.

A problem just as important is mechanization and automation of the work. In recent years the industry's work volume has risen greatly, although manning has increased but little. Yet the proportion of manual labor still remains high. Even in welding, which lends itself to automation, half of all the work is performed manually. It would seem that the basic principles of eliminating manual labor have already been found here. The Sever, Styk and other types of installations do not have counterparts in world practice. However, there is still only a handful of them. Industry still is not producing them in series. At times we experience shortages even in ordinary mechanisms for manual welding. Much work must be done here by the machinebuilding ministries. Incidentally, the same is true in regard to the output of other efficient mechanisms.

The timely delivery of equipment to regions that are difficult of access also is very important. Delays are too costly. More than 75 percent of the length of the Urengoy-Novopskov gas pipeline has been welded into the strand. The Salavat Machinebuilding Plant, the Ust'-Kamenogorsk Instrumentmaking Plant and other enterprises have not delivered to the route a substantial portion of the required number of traps for scrapers and starting pigs, check valves, and other equipment and fasteners. Gaps in the readied gas-pipeline strand remain which must be returned to later, with the expenditure of additional labor and time.

A speedup in the pace of pipeline construction, a rise in its quality and reliability and a reduction in its labor intensiveness will depend greatly upon the efforts of the metallurgists, chemists and machinebuilders. We refer here primarily to the manufacturer of pipe that is insulated at the factory. The branch's subunits have been prepared for work with this pipe. But ferrous-metallurgy and chemical-industry enterprises are hindering the introduction of this progressive method on the pipeline routes. Insulated pipe is produced in small amounts. Meanwhile, it has been determined that for each thousand kilometers of factory-insulated pipe, the labor of 300 people is saved. Doubled 20-meter pipe, whose use will sharply reduce welding operations in the field, has not come to the line at all.

In 5 years the branch's collectives have had to lay more than 100,000 kilometers of trunk pipeline and of oil and gas field pipeline. The job is complicated and strenuous. And that is why it is so important to solve without delay and responsively the problems mentioned above. This can be done only by the friendly, united efforts of all ministries and departments that are taking part in development of the country's fuel and power complex.

Let us note that the main body of the pipelines that are being erected lie within Russia. And, finally, the builders are counting on the help of oblast and rayon party committees and soviets of people's deputies. We have experience in such collaboration. It indicates that party and soviet organs can be especially helpful in improving the living conditions of and cultural services for those who work on the pipeline routes. Kuybyshevskaya, Permskaya and Sverdlovskaya oblasts are examples of this. Field settlements where there are facilities for domestic services amenities, baths, hairdressers, libraries, local medical facilities, athletic grounds, and even evening secondary schools have been established on the pipeline routes here. It should be like this everywhere--from the northern Ob' region to the spurs of the Carpathians.

It is not easy to recover gas under Siberia's severe conditions, but it is no less difficult to lay arterials for the "blue fuel" across swamps, the taiga, mountains and streams to the places where it is consumed. So the pipelines that are being built today have been announced as shockwork construction projects of nationwide concern. And the branch's collectives are doing everything possible to assure that the party's goals will be met.

11409

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## PIPELINES

### ORENBURG-KAZAN' PIPELINE PASSES TESTING

Moscow IZVESTIYA in Russian 17 Jul 82 p 1

[Article by R. Yevseyeva, correspondent of the Ministry of Construction of Oil and Gas Industry Enterprises press center: "New Bed in the Gas River"]

[Text] Testing has been completed of the ethane pipeline Orenburg-Kazan'. The new steel artery extending 434 kilometers will supplement the raw material resources for the chemical industry, and will permit more complete use of the riches of the Orenburg gas field.

In Ponomarevk, where there is a section of the trust "Nefteprovodmontazh" it is now unusually quiet. The builders have finished their work here. They have already transferred to a new place. The famous route Urengoy-Uzhgorod waits for many of them. Only those are left who remain for the testing, the emergency-restoration brigade which assembles especially reliable specialists and the necessary equipment.

Vitaliy Mikhaylovich Kolesnikov, deputy head of the trust "Nefteprovodmontazh" who is responsible for his section, has spent a large part of the day at the radio station. All the strain of the last stage of construction is concentrated in the customary and business-like calling of voices.

"Fattakhov, Fattakhov! How is the pressure on your pipe?" says Veniamin Mikhaylovich Yefremov, deputy head of the trust "Vostokmontazhgaz." This trust performed the welding-installation operations on the route, and now Veniamin Mikhaylovich is heading the testing.

The pressure rises gradually in the pipe. Powerful compressors must inject gas into the pipe and bring its pressure to 125 atmospheres. This is how the new trunkline is tested for strength. Although the testing pressure is much greater than that under which the trunkline will operate, it has to be maintained for no less than 12 hours. Then it will be returned to 100 atmospheres, and the figures on the manometers will creep upwards again. These will be the tests for density.

The tests are a special time for the builders of underground trunklines. They are like an examination in which the quality of the lengthy and intensive work

of many subdivisions of the Ministry of Construction of Oil and Gas Industry Enterprises who participated in laying the new route is verified. The concentrated strain of the people who are conducting this last test which lasts more than a day, is understandable: the work has already been done, and now the most difficult remains, to wait. They are waiting to see how the pipe behaves at this critical pressure and whether there will be a thundering gusher of a break.

From above, from the helicopter which is guarding the route line during the tests to note a disorder in time, one can only guess at times that there is the line of a new trunkline below among the grain of the Orenburg field which is beginning to turn gold. It is precisely these broad grain fields which have become for the builders of the new ethane pipeline a special "Volga region" difficulty.

"In fact," says V. Kolesnikov, "it seems to be better: there is no taiga, or swamps. The ravines and small rivers that we encountered were not serious obstacles. But this is the country's famous granary. Grain is grown here. And we must carry out our construction work without interfering with this primary business of the Orenburg land. This means that we cannot work when they are plowing the field and when the grain is forming ears we have to wait until the end of harvest."

The builders were only several short months without work. They tried to use the working time as best as possible: in June of this year alone, the subdivisions of the trusts "Nefteprovodmontazh," "Vostoknefteprovodstroy" and "Tatnefteprovodstroy" fulfilled a quarter of the annual plan on the route.

Recultivation of the lands here acquires especial importance. Before the beginning of work it was necessary to remove the upper fertile layer of soil, remove it and after laying the pipe in the trench, return it to its previous place. The builders did all of their work irreproachably, each meter of plowed field on which they passed was returned to the farmers.

The new ethane pipeline is also the contribution of the builders to the realization of our country's food program which the workers of many sectors are applying all forces to resolve. The underground channel will carry this valuable natural gas to the shops of the production association "Orgsintez" in Kazan' where it will be used to produce a whole gamut of necessary products for industry and agriculture, in particular mineral fertilizers.

"Transporting of pure ethane is sufficiently complicated," relates the head of the production-distribution administration of the Ministry of Construction of Oil and Gas Industry Enterprises for the Volga and Ural region V. Zinov'yev. "Even the smallest compounds of it with water are explosive. Therefore the builders spent a lot of time on special drying of the steel trunkline, not a drop of water or a gram of water vapor could be present in the underground channel. The output of the new trunkline which is small in diameter as compared to our customary 1.5 meter channels for transporting standard gas will be attained by increasing the pressure within the pipe to 80-100 atmospheres. The ethane compressed to this degree becomes a special, supercritical, or in other words, pseudoliquidified state. Although it is liquid it does not become so. Its

density is equal to the density of liquid. In Opakov, not far from Kazan', a special reduction station returns the ethane to the normal state, and at pressure 20-25 atmospheres sends it to the shops for reprocessing at the plant.

The voice on the radio station is calm and demanding.

"How is the pressure there? Is it holding?"

The pipe "held" the 125 atmospheres. This was already a victory. This is a simple daily working victory. This means that the new channel is ready for the ethane.

9035

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## PIPELINES

### NEW GAS PUMP USES AVIATION DRIVE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 10 Jul 82 p 1

[Article by correspondent of the Ministry of Chemical Machine Construction press center A. Kirichenko: "Unit for Gas Pipelines"]

[Text] The interdepartmental commission in Sumy in the machine construction production association imeni M. V. Frunze adopted a new gas pumping unit with aviation drive with output of 16,000 kW with a high evaluation. In its decision the commission approved the series production of the innovation, the most important link in the gas pipeline equipment.

At the request of the correspondent of the Ministry of Chemical Machine Construction press center A. Kirichenko, the chairman of the interdepartmental commission of the USSR Gosplan for questions of creating automated gas pumping units with aviation type drive, USSR State Prize laureate, A. Aver'yanov comments on the event.

"The creation of a new, powerful and reliable gas pumping unit with aviation drive (GPA-Ts-16)," said Arkadiy Alekseyvich, "has become the result of a lot of work which was started back in the Ninth Five-Year Plan. As is known, the gas extractors of West Siberia in recent years have advanced far to the north, to the area without roads, with swamps and permafrost. The development of the northern fields generated a mass of specific difficulties. In particular, it was found that the traditional methods of building stationary compressor stations, and a lot of these stations are erected on the gas pipelines, are unsuitable here. Special studies established that the best variant for modern conditions will be the gas pumping unit with aviation drive. The result of this work was the unit GPA-Ts-6.3 in block design. It had an entire complex of advantages. The first, as a drive it used, as I already noted, an aviation engine. It is not a new one, but one which has already exhausted its service life on an airplane. The economic advantages of this selection of engine, as they say, does not need commentary. But I will nevertheless name the following figure: the use of engines which have used up their service life makes it possible to annually save up to 7000 T of expensive heat-resistant alloys. Of course, it was not easy to "retrain" the aviation engine from its standard fuel kerosene to gas. But the scientists coped with this task.

Secondly, the use of the block design made it possible to conduct installation directly at the site from blocks of plant readiness. This cut in third the periods for installation operations which essentially now have been reduced to installing blocks on a metal foundation frame and connecting them to manifold of the station and to each other.

The unit has successfully been "entered" into the gas pipelines. It is convenient to operate. It requires one-third fewer service personnel than the stationary gas pumping units. In 1980 the group of its creators was awarded the USSR State Prize.

The 26th CPSU Congress placed before us even more complicated tasks. In this five-year plan we are faced with constructing thousands of kilometers of powerful gas pipelines. In this case new large diameter pipes will be used to build the gas trunklines. The pressure in them will increase. Consequently the power of the compressor stations must also rise.

Our commission worked in constant contact with different subdivisions of the Ministry of Chemical Machine Construction.

All the necessary documents for producing the new unit for the Sumy production association imeni M. V. Frunze were produced in time by the colleagues of the Moscow Special Design Office for the creation of air and gas turbocooling machines (SKB TKhM) headed by A. Starostin and the Sumy branch of the special design office which is headed by Yu. Komlyk. The appropriate production facilities were set up in Sumy. All of this permitted the machine builders to fabricate the first two samples of the new unit last year already. But now, after the plant tests, one of the units has been presented to the commission.

The GPA-Ts-16, having maintained the advantages of its precursor, has become triple in power. It operates, as already noted, from the aviation engine "TU-154" or "IL-62". In this case the designers have tried to use the maximum parts and assemblies of the engine. The unit will withstand all the climate adversities of the extreme north. It can operate at temperature to  $-50^{\circ}$ . By the way, it can also operate at  $+50$ . In short, it does not fear either frost or heat.

Whereas the stationary units need water for cooling, our GPA gets by without water. Under conditions of a frosty winter, this is an indisputable advantage. The following part is also curious. The exhaust gases of the gas pumping units have a temperature about  $400^{\circ}$ . The experts from the service personnel of the compressor stations already on the previous unit began to use this heat to warm up the greenhouses and to grow flowers and vegetables under northern conditions. The new unit has a special heat exchanger which can be connected to the greenhouse or the heating network. Now this heat will not simply "warm the tundra."

With the transition to series production of GPA-Ts-16, work on it does not end. Ahead of us is the creation of an even more powerful unit with aviation drive, this time from the powerful "IL-86."

The other day the CPSU Central Committee and the USSR Council of Ministers approved the initiative of the labor collectives of the enterprises and

organizations of a number of ministries to guarantee timely start-up of the main gas pipeline Urengoy-Pomary-Uzhgorod and adopted a decree regarding measures guaranteeing shipment of gas to the internal consumers and for export in volumes defined by the five-year plan and the concluded contracts.

The creation and series manufacture of the gas pumping unit with output of 16,000 kW with aviation drive will promote the successful resolution of this task.

9035

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## PIPELINES

### URENGOY-UZHGOROD GAS PIPELINE PROGRESS TRACED

Moscow PRAVDA in Russian 19 Jul 82 p 1

[From reports of the PRAVDA correspondents: "For the Gas Trunkline"]

[Text] The initiative of a number of collectives to guarantee timely start-up of the world's largest gas pipeline Urengoy-Pomary-Uzhgorod approved by the CPSU Central Committee and the USSR Council of Ministers has been supported with interest at all the enterprises associated with construction of the transcontinental trunkline. In response to discriminatory measures undertaken by the U. S. administration, the Soviet engineers, technicians and workers have successfully set up output of new equipment, and are increasing the production of the already developed units. The new gas pipeline will be opened on schedule, all the participants of the trunkline construction are confident of this.

#### Riga

The workers of the Riga diesel construction plant have already prepared a large batch of engines, a lot of spare parts above the plan for the gas pumping units for the third quarter account.

The other day the Riga residents sent to the enterprises forming the equipment for construction of the gas pipeline a new large batch of engines and diesel generators. They will be used to put into operation the compressor units, gas pumping devices and pumps. Socialist competition for the most complete and rapid satisfaction of the demands of the builders of the transcontinental trunkline is broadening at the diesel construction plant.

#### Yoshkar-Ola

Two komsomol construction teams of Armeniya have started their labor semester in the Pomarskiy PMK-2 of the construction-installation administration of trust No 7 from the association "Tatneftestroy" on one of the most important construction sites of the country, the construction of the Urengoy-Pomary-Uzhgorod gas pipeline.

Students from Yerevan and Kirovakan at their meeting made a decision to fulfill the assigned volume of construction-installation work for construction of the Pomary compressor station and to perform additional work for R 75,000 ahead of schedule, by 20 August. They appealed to the railroad workers of Gorkovskiy trunkline to give the freight coming to Pomary the "green light", and the Ministry of Construction of Oil and Gas Industry Enterprises to guarantee continuous supply of building materials for the facilities of the compressor station.

#### Salekhard

Several sea transports loaded with large-diameter pipes have arrived from the FRG at the moorings of the new port located in the Ob' Gulf. They are now being unloaded on the northern platforms of the Nizhneobskiy ports. The pipes which are made according to the new technology with plastic coating have been shipped without defects, dents and with complete preservation of the insulation. They will be laid on the northern arm of the Urengoy-Pomary-Uzhgorod gas pipeline.

A total of 200,000 tons of freight for the gas pipeline builders will be shipped in 1982 alone by the northern sea route. This is over double that of last year.

#### Khabarovsk

The powerful gas pumping unit which takes up several railroad cars was sent from the entrances of the plant "Energomash" for the Urengoy-Pomary-Uzhgorod gas pipeline. A meeting took place at the enterprise whose participants announced the futility of the attempts of the U. S. administration to slow down construction of this trunkline by economic sanctions.

The Khabarovsk machine builders have adopted the commitment to rapidly increase the supplies to Urengoy. The orders of this year for one of the three types of gas units manufactured by the plant will be fulfilled a month ahead of schedule. The designers and the production engineers of the enterprise have prepared for manufacture gas pumping equipment which is new for our industry. Next year the plant will ship several of these units, and will increase by almost a quarter the output of the other gas equipment.

9035

CSO: 1822/247

## PIPELINES

### PIPELINE ANTI-CORROSION COATING DEVELOPED

Moscow STROITEL'NAYA GAZETA in Russian 27 Jun 82 p 3

[Article by A. Kirichenko, correspondent of the press center "Khimash": "Pipeline Protection"]

[Text] As indicated by studies, extraction, transporting and processing of a ton of fuel "writes off" for corrosion of pipelines a kilogram of metal. It removes the same amount for every 8000 m<sup>3</sup> of gas.

The specialists and scientists of the Kiev Ukrniplastmash, Institute of Electric Arc Welding imeni Ye. Paton, the sector of petrochemistry of the Uk Academy of Sciences and a number of other organizations have successfully worked on the problem of protecting the metal in the Ukraine.

"The currently employed materials and technology for protecting the pipes by butylene-perlite composites and epoxy resins no longer satisfy us," relates the director of the Ukrniplastmash V. Zverlin. "These materials are essentially unsuitable for anticorrosion protection of the multilayer pipes almost 1.5 m in diameter designed to operate under pressure up to 75 atmospheres created in the Institute of Electric Arc Welding imeni Ye. Paton. Different materials are therefore needed."

Valeriy Grigor'yevich shows us a segment of pipe covered with a black, seemingly leathery, insulation:

"Try to tear it!"

I take the end of the tape which has obliquely wound the pipe, and with force separate the insulation from the metal. In this case blue threads stretch between the tape and the surface of the pipe and do not break.

"This is a two-layer tape," explains the head of the institute. "It has thermal-shrinking properties: when it is heated it compresses and encompasses the pipe tightly. In this case its inner layer is melted and guarantees reliable gluing to the metal. You saw the threads of this internal glued layer."

The tests indicated that our domestic innovation is not in any way inferior to the foreign analogs. The insulation has withstood both frost and heat, and has

not become worse when hot gases are transmitted through the pipeline, for example.

Calculations have shown that the effectiveness of using the tape exceeds R 23 million.

9035

CSO: 1822/247

## PIPELINE

### NEW GAS PUMPING UNIT TESTED

Moscow PRAVDA in Russian 25 May 82 p 3

[Article by V. Gerasimov, PRAVDA correspondent: "Based on Cooperation"]

[Text] At the Novgorod experimental station of the Ministry of the Gas Industry, interdepartmental tests of the main gas pumping unit GTN-25 are successfully underway. This unit was designed and constructed by the collective from the association "Nevskiy zavod" imeni V. I. Lenin. Now the enterprise has begun to assemble the fourth unit which will complete the experimental-industrial batch and will open up the road for series manufacture of machines with output of 25,000 kW. The main gas pipelines of the country will be equipped with them.

Upon entering the test stand-assembly shop of "Nevskiy zavod" the following sign attracts attention: "One gas-turbine unit GTN-25 conserves a million rubles in the national economy." By creating pressure in the gas pipelines up to 100 atmospheres, it will begin to pump gas considerably greater distances than now, and the intervals between the stations will increase. The number of stations on the trunklines will consequently decrease. This will also permit a saving of fairly large resources. In the 11th Five-Year Plan the people of Leningrad are faced with setting the task of fabricating several dozens of these machines. The collectives of the association "Nevskiy zavod," "Metallicheskiy zavod" and "Turbolopatka" have been called upon to solve this task.

The Neva machine builders will adopt the main load. In this one year, for example, in order to cope with the assignment they are faced with guaranteeing rates of increase in production volume which have been outlined for the end of the five-year plan.

"The subdivisions have a distinct idea about the complexity and large scale of the set task and are striving to use all potentialities for its successful resolution," relates the chief engineer of the enterprise G. Bufalov. "Now they are creating experimental-industrial samples. It is necessary to prepare production so that by the moment the machines pass to series manufacture their design will be fairly worked out and they will be manufactured smoothly. The engineers and workers have suggested a number of changes whose goal is to reduce the labor intensity of fabricating the units and to achieve their high quality."



The brigade of L. Babukov is involved in the final assembly of the units.

"We must prepare the fourth machine for shipment according to commitments of the collective in November, a month earlier than the planned, but I think that we will be able to cope with the assignment even faster," says the brigade foreman. "By the way, now the most important thing is how to prepare for series production."

The Neva machine builders are not letting precisely this main goal from their view. Therefore at the weekly operational meetings of the special staff, the schedules for movement of parts and assemblies are carefully analyzed not only for those machines that are planned for output this year. Problems of creating additional sets of stock and parts are discussed with no less attention and exactingness: next year they are faced with assembling 13. When work is going at full force, every hour will be dear. In order to compress the time for assembling the units, it is suggested that work be organized in three shifts, and fabrication of the parts and assemblies be concentrated on specialized sections. Creative cooperation of the engineers and technologists, designers and metallurgists will yield gratifying results.

According to the technology, the ring made of alloyed steel for GTN-25 on the carousel machine is processed for 2 1/2 months. If nothing is undertaken, during the year they successfully prepare bands only for five machines, the output at first glance is not complicated: one should expand the fleet of equipment, but first of all, where will the machines come from, and secondly, additional area is required for their installation. The engineers have selected a new solution: without damaging the work they have replaced the brand of steel in the band and have suggested increasing the cutting rate on the active "carousel." The output of the machine more than tripled.

Dozens of similar suggestions governed by the mutual commitments of the collectives and the contract for creative cooperation are now being realized or will be introduced in the near future.

"The effect of cooperation and innovator's approach is expressed in specific quantities," notes the deputy general director of "Nevskiy zavod" N. Ivanov. "The labor intensity of the main unit is 186,000 normal hours. In order to manufacture the fifth in count and the first in series, according to our calculations, 74,000 norm-hours less will be required. This means that the series equipment will be manufactured faster, with fewer outlays of forces and resources."

9035

CSO: 1822/227

## PIPELINE

### BRIEFS

URENGOY-NOVOPSKOV GAS PIPELINE--The new main gas pipeline stretches 3,340 kilometers, from the circumpolar Urengoy to the Ukrainian city of Novopskov. It will be opened in the first 6 months of 1983. The builders have taken the commitment to open it ahead of schedule, by the 60th anniversary of the formation of the USSR. In the pre-May labor reports of the leading collectives, reports were made of the completion of laying individual sections of the gas pipeline. The first to achieve this success was the production line under the supervision of B. Kushki (trust "Soyuzgazspetsstroy"). The lines of A. Nastashev (trust "Mosgazprovodstroy") and Hero of Socialist Labor I. Shaykhutdinov (trust "Tatnefteprovodstroy") and F. Sosnina (trust "Novosibirsktruboprovodstroy") finished the line operations. Now spring is coming to the northern Tyumenskaya Oblast. The sun is beginning to thaw the winter roads and free the rivers of ice. Neither people nor equipment will be able to traverse through the swamps. Therefore every hour is precious to the builders. In the trust "Severtruboprovodstroy" which is based in Nadym, the brigade of insulators of V. Madenov and our collective have long been the leaders of the socialist competition. Yesterday's records of the winners of the labor competition have become the standard for the majority. The results of the completed season for the trust are almost double the previous. By May 300 kilometers of the Novopskov trunkline had already been laid of the 422 planned by the Nadym builders. The daily "growth" of the gas pipeline is tens of kilometers. [Text] [Article by B. Diduk, brigade foreman of welders from the trust "Severtruboprovodstroy", USSR State Prize laureate] [Moscow TRUD in Russian 1 May 82 p 1] 9035

PIPELINE WELDING--Construction of the gas pipeline section Urengoy-Uzhgorod which is on the territory of Tatariya has begun. The first butt-joint was welded on the 2,160 kilometer route near the village of Biryuli. Two comprehensive production lines from the trust "Tatnefteprovodstroy" are laying the gas trunkline. One of them is headed by Hero of Socialist Labor I. Shaykhutdinov. The working group that he heads includes brigades of machine operators, transporters, installers and welders. The route workers of Tatariya are obliged to complete their 230-kilometer section of the gas pipeline from Vyatka to the Volga, crossing 15 rivers and three dozen automobile and railroads ahead of schedule, in April of next year. [Text] [Moscow IZVESTIYA in Russian 10 Jun 82 p 1] 9035

RIVER TRANSPORT OF PIPES--The river transport workers of the Irtysh steamship company are fulfilling a responsible assignment for shipping large diameter pipes for the northern gas pipelines of the Tyumenskaya Oblast. The main volume of pipes travels from the Tobol'sk port to the lower course of the Ob', to the lateral river of Kazym. From the first day of navigation, the river transport workers of Irtysh adopted a good rate and considerably advanced the schedule for shipping cargo. The May plan was overfulfilled by the river transport workers by 74,000 T. This year for the first time they made cargo caravans up to the 195-kilometer Kazym, having increased the navigable section of

the river by 105 kilometers. Over 10 kilometers of steel pipes have already been shipped here. The first routes on the upper reaches of the Kazym from Belyy Yar were made by the fleet crews under the supervision of the captain Viktor Petrovich Chalov. From the beginning of navigation, the river transport workers of the Irtysh steamship company have shipped to Kazym over 200,000 T of large diameter pipes for the builders of main gas pipelines. Many crews of the Irtysh fleet are doing excellent work on this important section, including commands of the diesel boats RT-655, OTA-875, RT-658, RT-643 and others. Having started a labor watch in honor of their professional holiday, the crews of the fleet and the collective of the Belyy Yar landing of the Khanty-Mansiyskiy port have decided to fulfill the plan for June and the second quarter ahead of schedule. [Text] [Moscow VODNYI TRANSPORT in Russian 10 Jun 82 p 1] 9035

INCREASED EQUIPMENT PRODUCTION--The enterprises of our country are capable of fabricating any equipment needed for building the West Siberia-West Europe gas pipeline. At the meetings, and worker's meetings which are now taking place in the labor collectives, the Soviet people are expressing their decisiveness to respond to the discriminatory measures of the U. S. administration to put into operation new reserves to fulfill the important orders. The labor collectives of Leningrad, participating in the manufacture of equipment for the gas pipeline have taken up the initiative of the workers from the association "Nevskiy zavod" imeni V. I. Lenin who gave their word to accelerate output of machines for this construction. Additional Socialist commitments have been adopted to increase the output of the necessary equipment. In order to produce gas-pumping units with power of 25,000 kW, Leningrad is now forming a large scientific-production complex capable of rapidly solving this task. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 28, Jul 82 p 3] 9035

FIBERGLASS PIPES--The Institute of Mathematics and Mechanics has developed theoretical fundamentals for calculating and designing pipes based on fiberglass. Experimental production of the institute has set up manufacture of pipes of different diameter. They are light and flexible and withstand great loads. The new pipes are already being used at enterprises of the association "Kaspmorneftegazprom" and "Azneft'." The production engineers have calculated that the use of only one modification of the pipe will provide the oil industry enterprises of the republic with R 31 million of saving. [Text] [Moscow PRAVDA in Russian 9 Jun 82 p 3] 9035

OIL PIPELINE OPENS--Usinsk, Komi ASSR (TASS)--The reliable output of oil from the Arctic formations of the Vozey field to the center of the country is guaranteed by the Severnyy Vozey-Usinsk pipeline. Yesterday it was connected to the trunkline Usinsk-Ukhta-Yaroslavl'. It began to be filled with oil. The prospectors of the depths discovered and are exploring another five oil and gas fields near the oil pipeline. This creates good prerequisites for the creation of a new fuel and energy region in the Arctic. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 14 May 82 p 1] 9035

GAS PIPELINE ELECTRIC ENGINES--Novaya Kakhovka, Khersonskaya Oblast--The workers of Novokakhovskiy electric machine construction plant have successfully coped with the fulfillment of the responsible assignment of this year, to make and to

ship to the route of the future Urengoy-Uzhgorod gas pipeline 150 electric engines. "The mechanics-assemblers of our collective," relates the brigade foreman V. Minchenko, "have labored under the motto 'green light for the order of the important construction site of the five-year plan.' All the electric engines that we have manufactured have the state sign of quality. The units have considerably reduced metal consumption." The electric engines of the NovayaKakhovka machine builders are designed for compressor stations and field workshops of the new gas pipeline. [Text] [Moscow RABOCHNAYA GAZETA in Russian 3 Apr 82 p 1] 9035

MULTILAYER PIPES--Vyksa (Gor'kovskaya Oblast). The use of multilayer large diameter pipes will drastically improve the productivity of the transcontinental gas pipelines. Their production is being developed by the Vyksa metallurgists. The pipes made of several layers of low-alloy steel are capable of withstanding working pressure of 100-120 atmospheres. This will permit a more than triple increase in the throughput of the gas pipeline. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 10 Jun 82 p 1] 9035

UNDERWATER PIPELINE--(Azerinform)--The crew of the specialized pipe laying ship "Suleyman Vezirov" has had yet another labor victory. It has laid the fifth branch of the Bulla-more-Dashgil' pipeline. The new gas pipeline differs significantly from its predecessors. It does not have equals in diameters of the pipes, 530 mm and thickness of their walls not only on the water area of Bulla Island, but in the entire Caspian Sea. This will significantly improve the throughput of the pipeline through which the fuel of the offshore depths will be transported to the mainland, and will help to fulfill the instruction of the 26th CPSU Congress regarding the need to increase extraction of gas condensate and to guarantee its more complete use. [Text] [Baku VYSHKA in Russian 29 May 82 p 2] 9035

GAS PIPELINE BOOK--"Gas-pipes" is the name of a small book on construction of the West Siberian-center of the country gas pipeline, as well as the export gas pipeline Urengoy-Uzhgorod which Comrade L. I. Brezhnev has called the central construction site of the five-year plan. The authors are a group of Soviet journalists, the editor is Ye. I. Borodin and the compiler is G. P. Panushkin. (Moscow, IZVESTIYA, 1982, 80 p, with illustrations). This book is based on the story of the construction of the transcontinental export gas pipeline Urengoy-Uzhgorod which extends almost 4,500 km. The "blue fuel" from West Siberia will be shipped by our country on this pipeline to the FRG and a number of other countries in Western Europe. In turn, they will supply the Soviet Union with pipes and equipment for the gas pipeline. The project "gas-pipes", despite the counteraction of the U. S. administration is being implemented. It strengthens mutual confidence among nations and is a symbol of peace and mutually advantageous cooperation. The book opens with an interview with the minister of construction of oil and gas industry enterprises of the USSR B. Ye. Shcherbina. The collectives of the Ministry of Construction of Oil and Gas Industry Enterprises, he relates, are literally working over the entire territory of the Soviet Union from its western boundaries to the Far East, from the Arctic to the hot deserts of Central Asia. But their main object is West Siberia and all that is associated with its richest oil and gas fields. The

essays and reports, descriptions of conversations with the leaders of the construction sites and workers published in the book demonstrate the difficult, but noble and truly heroic labor of the route workers. At times they have to work under the most severe natural conditions and solve complicated technical and engineering tasks. The scales and rates for the 11th Five-Year Plan are such that the builders of the gas trunklines need to traverse, figuratively speaking, twice the globe at the equator in a very short time. The book "Gas-pipes" is the story of the central construction site of the five-year plan and is designed for a broad circle of readers. [Text] [Article by V. Avtonomov] [Moscow STROITEL'NAYA GAZETA in Russian 2 Jun 82 p 3] 9035

ACCELERATED EQUIPMENT PRODUCTION--(TASS)--The workers of the enterprises, scientific research institutes and design offices have seized the initiative of the Leningrad and Sverdlovsk machine builders to unite efforts of the subcontractors to manufacture equipment needed for construction of the gas pipeline West Siberia-West Europe in a shorter time. The Soviet people are adopting increased commitments at the worker's meetings. The collective of the Donetsk institute "Yuzhniigiprogaz," the general designer of the gas trunklines unanimously decided to complete the output of the planned-estimated documents for construction of the systems of main gas pipelines Urengoy-Uzhgorod with the use of domestic equipment in a shorter time. The institute specialists discussed this at the meeting. In response to the call of the Leningrad machine builders to the subcontractors, the planners reviewed the previously adopted socialist commitments. They gave their word to supply the builders with documents 1.5-2-fold faster. The ways for accelerated fulfillment of the orders of the West Siberia-West Europe gas pipeline builders were outlined at the meeting by the workers of the Uzhgorod experimental plant of gas transport turbine units. In the name of his comrades, the worker N. Yakovlev announced that the enterprise workers unanimously supported the initiative of the Leningrad and Sverdlovsk machine builders for additional supplies of equipment for the construction site. This is how the Soviet people answer the discriminatory measures of the U. S. administration. The meeting also adopted increased socialist commitments and defined the ways to realize them. The workers of the trust "Novgorodpromstroy" gave their word to accelerate the start-up of the second phase of the Chudovskiy plant of power machine construction. The machine builders of Chudova are faced with supplying the people of Leningrad with a number of set-forming assemblies and parts for the gas pipeline equipment. Acceleration of work will become our contribution to the relay race of the subcontractor enterprises who are fulfilling a common important task, the builders announced at the meeting. The workers of the main plant of the Tashkent association "Sredazelektroapparat" made a decision at the worker's meeting to reduce the shipment schedule of equipment for the Urengoy-Uzhgorod gas pipeline by 2 months. The worker U. Alimav announced in the name of the association collective that the orders of the builders of the gas trunklines will be fulfilled with high quality. It was decided that all the equipment whose shipments were planned for the third quarter would be received by the gas pipeline builders in July. Ways to increase the output of the system of control for the gas pipeline were outlined by the participants of the meeting which took place at the plant "Elektroapparat" in the city of Kaspi (Georgian SSR). It was decided to ship to the gas route builders over a thousand panels and control stations ahead of schedule. [Text] [Moscow PRAVDA in Russian 6 Jul 82 p 1] 9035

OIL LOSSES--(Kaz TAG), Shevchenko--The mention of oil as fuel has disappeared from the lexicon of the workers in the Mangyshlak section of the Uzen'-Kuybyshev oil pipeline. They have begun to use inexpensive natural gas in the furnaces to heat the pumping stations. Oil can be transported here only at a temperature of no less than 32° above zero. In order to maintain it in this condition, the necessary temperature in the oil pipeline was previously guaranteed by burning the oil itself. This was taken directly from the trunkline. This cost annually over 30,000 tons of valuable raw material. The efficiency experts of the southern administration of main oil product pipelines helped to stop these losses. They suggested using natural gas from the neighboring fields for heating. They developed a new design of furnace jets and the optimal routes for laying the fuel gas pipelines. The innovation will conserve not only oil, but also electricity which previously was used to blow air into the hot oil mixture. Gas is not needed in the new assembly. The entire route of the "hottest" oil pipeline will be switched to the new method of heating before the end of the five-year plan. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 Apr 82 p 1] 9035

FLUSHING COMPOSITE--Dneprodzerzhinsk--The repairmen of Sevastopol' and the instrument builders of Kharkov, the oil workers of Tyumen' and the metallurgists of Zhdanov, machine builders of Dnepropetrovsk and the ship repairmen of Sovetskaya Gavan' were the first to test the flushing-cleaning composite "TMOK-1 P." They all gave it a high evaluation and asked for its more rapid series production. What is the advantage of the composite created by the scientists of Dneprodzerzhinsk over the known flushing preparations "Labamid-203" and "Labamid-102"? The main one is decrease to a minimum of the technological operations in galvanizing. Before there were 5-6 and they were performed using harmful and aggressive acids, inflammable petroleum products, now only two operations have remained, washing the parts and their rinsing. The labor productivity of the galvanizers in this case significantly rises, repeated contamination is successfully avoided, the wastes do not float to the surface but are broken down and the silt settles to the bottom of the unit. An aqueous solution based on this effective composite can be used 3-4 times, guaranteeing low-waste technology. [Text] [Article by V. Maslovskiy, assistant professor of the industrial institute imeni M. I. Asenichev] [Moscow SOTSIALISTCHESKAYA INDUSTRIYA in Russian 14 May 82 p 2] 9035

PIPE MOLDING--Perm'--The automated line for molding oil assortment pipes has been introduced into the association "Perm'neft'." The line is designed for hydraulic testing of pipes with hermetic sealing on the smooth surface under pressure of 250 atmospheres. The supply of pipes to the molding stand is mechanized. The process is controlled from the operator cab. Introduction of the automatic lines considerably improves labor productivity. The annual economic effect is R 251,300. [Text] [Article by V. Torchutkin] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA 14 May 82 p 2] 9035

EARLY PIPELINE COMPLETION--Construction of the final segment of the Perm'-Al'met'yevsk oil pipeline has been completed a month earlier than the planned. The 150-kilometer segment of the trunkline has been laid by the collective from the trust "Tatnefteprovodstroy" in less than a year. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 18, Apr 82 p 3] 9035



PIPELINE WELDING--The first kilometers of large diameter pipes have been welded by the builders of the Urengoy-Uzhgorod gas pipeline in the region of the Mor-dovian settlement of Torbeyevo. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 22, May 82 p 3] 9035

FINAL WELDING--The last seam has been welded on the 60-kilometer segment of the Urengoy-Novopskov gas pipeline. This section is the final on the trunkline. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 25, Jun 82 p 3] 9035

COMPRESSOR EQUIPMENT SUPPLY--The Sumy machine construction production association imeni M. V. Frunze has become the main supplier for compressor equipment for super long distance gas pipelines of high pressure. The state sign of quality was awarded the other day to the automatic gas pumping units whose series production the collective has developed. The site of their use is the thousand-kilometer trunkline for blue fuel which starts in Siberia. The first unit of the industrial batch was sent to the compressor station of the city of Tol'yatti where the gas river will flow from Urengoy towards Novopskov and Uzhgorod. The unit is capable of sending 32 million m<sup>3</sup> of blue fuel a day, triple that of its predecessors. This will yield an annual saving of almost R 2 million. The equipment is manufactured in complete plant readiness. Soon the gas builders will receive five of these sets, and next year their production will increase ten-fold. [Text] [Article by RATAU correspondent] [Kiev PRAVDA UKRAINY in Russian 7 May 82 p 2] 9035

ARCTIC OIL--Usinsk (Komi ASSR), 22 May--The northernmost 45-kilometer oil pipeline has begun to be filled with liquid fuel. A deep exploratory well is equipped with gusher apparatus became the first. The other day the second gusher well was put into operation. This started the birth of a new Arctic oil field. Its product will be transported for refining on the active Usinsk-Ukhta-Yaroslavl' pipeline. [Text] [Article by outside PRAVDA correspondent A. Kurkov] [Moscow PRAVDA in Russian 23 May 82 p 1] 9035

CASPIAN PIPELINE--Baku--The crew of the specialized pipe laying ship "Suleyman Vezirov" has set two records in the construction of the Bulla more-Dashgil' gas pipeline. The new gas line does not have an equal on the entire Caspian Sea for pipe diameter, 530 mm. This will considerably improve the throughput of the pipeline through which the "blue fuel" will be transported to the mainland. The second record of the crew is the highest rate of laying pipes for underwater pipelines in the country. Every day an average of 650 m of trunkline was laid on the bottom of the sea. The integrated brigades of N. Kugrov and B. Koshelenko, installer I. Gasanov, welders V. Eston, D. Guseynov, B. Amiryan and other workers were excellent laborers. [Text] [Article by D. Melikov, in-house correspondent] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Jun 82 p 1] 9035

AIR COOLERS--Tallinn--The Tallinn machine construction plant imeni Lauristin fabricated the first batch of air cooling units of increased efficiency "2AVG-75" for compressor stations of super powerful main gas pipelines ahead of schedule. In the new equipment, the stream of the gas river warmed up from compression at the compressor station is sent on 540 pipes of comparatively small diameter [Text] [Article by V. Proskura, in-house correspondent] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 May 82 p 1] 9035

PIPELINE CONSTRUCTION BEGINS--Construction of the section of the gas pipeline Urengoy-Uzhgorod which lies on the territory of Tatariya has begun. The first butt-joint has been welded near the village of Biryuli. The builders have been obliged to finish the 230-kilometer section ahead of schedule. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 25, Jun 82 p 3] 9035

LAND RECULTIVATION--We have been accustomed to say the land-provider. But for some these words are still a hollow sound. In the Pervomayskiy rayon of the Tambovskaya Oblast, the gas pipeline Petrovsk-Yelets is under construction. It would seem that it is a great and necessary business. At the same time it is intolerably painful to see how the builders are dealing with the main wealth, the land. By all rights they should have taken the upper fertile layer. After finishing work they should have put it back. They should have recultivated the entire damaged area, but this is what happened: the construction of the "line" is practically complete, and there is a gigantic scar remaining on the fields. Even if the gas pipeline builders had wanted to restore the fertile layer now, it is not known whether they could: they practically did not remove it. The land has been mixed and disfigured. The width of the band on certain sections reaches 55-60 meters. By even the most modest estimates, about 40 hectares of pastureland have been ruined. And how many roads have the all-terrain vehicles laid through the fields. How many pipes are lying around and how much metal is scattered? How much grain and hay will be underproduced at the fault of the builders? Moreover, the crops in the fields of the kolkhozes "Bol'shevik," and "Druzha" have been trampled? As a member of the party raykom office I know that the leadership of the rayon has appealed to the minister of construction of oil and gas industry enterprises of the USSR, B. Ye. Shcherbina to bring the guilty parties to order. In response a note was received from the head of Glavtruboprovodstroy I. I. Mazur. It said in particular that by the beginning of the present planting, recultivation will be completed. The promise has remained unfulfilled. The party raykom recently sent the minister a third letter. The pipes are being shipped in for the next "line" and we are worried that history will be repeated. A prudent attitude towards the land is one of the most urgent tasks of the food program. All those who have a relationship to the land have to solve it. [Text] [Article by N. Yurchenko, milker of the sovkhos "Snezhetsk" of the Pervomayskiy rayon, candidate for membership to the Tambov CPSU oblast committee] [Moscow SOVETSKAYA ROSSIYA in Russian 27 Jun 82 p 3] 9035

NEW GAS PUMPS--Khar'kov--The fabrication of new gas pumping units for the transcontinental trunkline Urengoy-Pomary-Uzhgorod has begun in the association "Soyuzturbogaz." These units are distinguished by increased reliability and efficiency. They will arrive at the route in complete and large blocks which will accelerate construction of the compressor stations. [Text] [Moscow EKONOMICHESKAYA GAZETA No 31, Jul 82 p 3] 9035

PIPE SHIPMENTS--The Khartsyzskiy pipe plant has become a major supplier for the builders of the Urengoy-Pomary-Uzhgorod gas pipeline. The shift of foreman Yu. Lyakh has welded a pipe on which it is written: "500,000 tons"--this is the number of products that the collective of the enterprise has produced since the beginning of the year. The plant workers are shipping the frost-resistant large-diameter pipes one month ahead of schedule. [Text] [Moscow EKONOMICHESKAYA GAZETA No 31, Jul 82 p 3] 9035



PIPE LAYING STARTED--Cheboksary--The almost 130-kilometer segment of the Uren-goy-Pomary-Uzhgorod gas pipeline stretches on the territory of Chuvashiya from the Volga to the Sura. Laying of steel pipes on this section has been started. The builders are full of resolution to open the first length of the gas route ahead of schedule, by December. [Text] [Moscow EKONOMICHESKAYA GAZETA No 31, Jul 82 p 3] 9035

FRG SHIPMENTS--Arkhangel'sk--Unloading of the diesel boats "Purshlakhta," "Pavel Korchagin" and "Vostok-6" of the North Sea Steamship Company has been completed at the new port on the Ob'. For the first time in present-day navigation they shipped large-diameter pipes from the FRG for the builders of the oil and gas pipelines. The diesel boats "Pioner Severdovinska" and "Petrozavodsk" are coming from Italy with the same cargo on board. Last year the Arkhangel'sk seamen shipped from the ports of West Europe to the mouth of the Ob' over 80,000 T of large diameter pipes which were then supplied to the oil and gas field workers by river ships. This made it possible to release 3500 railroad platforms for the national economy. The pipe shipments will increase this year. [Text] [Article by A. Shiryeyev, by telephone] [Moscow SOVETSKAYA ROSSIYA in Russian 27 Jul 82 p 1] 9035

EARLY PIPELINE COMPLETION--Cherkassy--The relay race for competition of the electric arc welders to be ahead of the schedules for construction of the Urengoy-Uzhgorod gas pipeline has been taken up at Cherkasshchina by the brigade of N. Fedchenko. This is one of the most experienced collectives in the trust "Ukrtruboprovodstroy" which has expertly developed new equipment and successfully realized complicated engineering tasks. Thus the first kilometers of the pipes on this section have been "sewn" by the unit "Styk-10" developed in the Institute of Electric Arc Welding imeni Ye. O. Paton of the Ukrainian SSR Academy of Sciences. It works in any weather, strongly welding pipes, and even the strictest laboratory monitoring does not have claims against the quality. Labor productivity of the welders tripled. [Text] [Article by Zh. Tkachenko, in-house correspondent] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 4 Jul 82 p 1] 9035

OIL FOR VIRGIN LAND--Kokchetav--The republic's first pipeline Petropavlovsk-Kokchetav-Tselinograd will improve the fuel supply of the national economy in the virgin land areas of Kazakhstan. It will annually supply hundreds of tons of gasoline, gas-oil and other petroleum products. The collective from the trust "Kazneftestroymontazh" has started its construction on two sections, Petropavlovsk and Kokchetav. Its first phase extending about 200 kilometers should be opened in the first half of next year. "Accelerated development of pipeline transport stipulated by the decisions of the 26th CPSU Congress," states the head of the trust "Kazneftestroymontazh" V. N. Stroyev, "is dictated by the increased demand for petroleum products. The start-up of the new trunk-line will significantly free-up the railroad, and exclude losses of fuel during transporting." The trust subdivisions have armed themselves with leading methods of technology and labor organization. The pipes are welded in advance into lengths up to 34 meters long by semiautomatic method and are shipped on an hourly schedule to the route. This preparation significantly accelerates their installation and placement in the trenches. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 22 Jul 82 p 1] 9035

KURA PIPELINE SECTION--Kurskaya Oblast--The workers of the SMU-4 from the trust "Krasnodartrubovodstroy" are participating in constructing the gas pipeline Urengoy-Uzhgorod on the segment Okhochevka-Besedino. Having started a shock-worker labor watch, the builders of the Kura section of the gas pipeline have been obliged to complete work on laying the 40-kilometer section of the trunk-line ahead of schedule. A car with the product of the Khartsyzskiy pipe plant has arrived at the Okhochevka station. The pipes 1.440 mm in diameter are supplied for the section under construction. [Text] [Moscow EKONOMICHESKAYA GAZETA No 31, Jul 82 p 3] 9035

PIPELINE EXCAVATORS--The railroad platform with excavators which bear the inscription "Pionerskiy" went slowly past the platform, and soon the car disappeared around the corner. This began the route of the powerful machines manufactured at the local excavator plant to Urengoy, for the construction of the gas pipeline. The pioneer organization of the city decided to conduct the operation "Sixty Pioneer Excavators for the New Construction Sites of the Five-Year Plan." All the brigades of Kentau collected for this purpose 720 tons of scrap metal. The first machine manufactured in October of last year was sent to the builders of BAM [Baykal-Amur trunkline], and the last to the oil workers of Tyumen'. The fellows kept their word. [Text] [Article by K. Borisov] [Moscow STROITEL'NAYA GAZETA in Russian 30 Jun 82 p 3] 9035

CSO: 1822/247

## GENERAL

### OBJECTIONS TO CURRENT DEVELOPMENT STRATEGY FOR SIBERIA VOICED

Moscow SOVETSKAYA ROSSIYA in Russian 11 Jun 82 p 2

[Article by V. Strizhev, general director of the production association "Nadymgazprom," Tyumenskaya Oblast: "Temporarily or Forever?"]

[Text] The tasks set by the 26th CPSU Congress for accelerated development of natural resources of Siberia and the Far East, in particular oil and gas fields of the Tyumen' North, advanced before the scientists and economists many complicated problems. They include the method of watch work at distant production facilities. Our newspaper in 1980 and 1981 published a number of articles supporting this approach to developing the gas and oil beds in the northern Tyumenskaya Oblast. The editorial staff is again returning to this topic today.

The author of the article which is published as a discussion is an economic leader who knows well the features of this region. Without refuting the actual idea of the watch method, he nevertheless advances a number of counter arguments.

We have been intensifyingly developing the watch method until now for the most rapid development of new fields. Take, for example, our association. People are taken by bus from the settlement of Pangody to the nearest gas fields 25 kilometers away, and to the distant gas fields from Nadym, 10 kilometers by helicopter. Shifts are sent to the Urengoy units from the city of Novyy Urengoy. There is the opinion that in the near future because of the growth in the number, the gas extractors will have to be taken even from the cities of the central Ob' region: Tyumen', Tobol'sk and other points 1500 kilometers away. In other words, the watch-expedition method is being developed at the fields. How can one argue with this suggestion? First of all, with considerations of economic efficiency. In the watch-expedition they say that one can get by with only settlements near the sites of concentration of labor and housing complex at the units. This is much cheaper than erecting cities at the Arctic Circle.

I will advance the following opinion. The watch method is necessary at peak moments for the construction of compressor or pumping stations that are scattered on enormous territories, or for drilling out a field. Then people stay

at the area of work only for months and can do without mobile housing. The expedition method in all of its modifications, from our viewpoint, is hardly appropriate for servicing the field. In my opinion, we are forced to use it because we are not concerned about timely development of the social infrastructure.

Let us glance into the recent past. The watch settlement at the field Medvezh'ye in its time was Pangody where it was only planned to rest between shifts, while the base city was Nadym. But soon there were 250-300 people living in each "watch" dormitory in Pangody that normally held 100. One-third were families. Another third waited for a room in order to settle down with their families. Until recently attempts to develop a social infrastructure here were not supported. It was believed that this would undermine the idea of creating the watch settlement. However, starting in 1978 all the inspectors suddenly began to be nervous about the too slow development of the same social infrastructure here.

Young people mainly come to the extreme north. And where there are young people there are weddings. Many young specialists come from Medvezh'ye with their families. They come with the hope of finding housing. A room in a watch dormitory at first seems to be paradise in a hut. The people, contrary to the watch-expedition method, try to settle in the north even on barely suitable square meters.

The base city of Nadym is being built slowly, and the people have to settle in Pangody. The development of this settlement has also been delayed for several years. Therefore in 1976 because of the lack of schools, housing and children's institutions there, 1700 builders, transporters and gas workers left. Calculations demonstrate that the annual losses from the release of one worker are about R 2000. This means that Pangody alone and in 1976 alone had about R 3.5 million of losses. A school and children's combine appeared in 1978. More than a million rubles were spent, and the situation noticeably stabilized, although it was still far from normal. We are convinced by experience that losses from the turnover of personnel in West Siberia equal expenditures needed for the creation of a social infrastructure.

One can cite some other significant factors which the proponents of the universal use of the watch-expedition method, and primarily the colleagues of the Institute of Economics and Management of the Ministry of Construction of Oil and Gas Industry Enterprises, as it seems to me, underestimate. According to their data, the watch method of servicing oil fields in the central Ob' region promises a lot of benefit. The calculations of Giprotymen'neftegaz demonstrate that in 10 years, 14 million losses resulted for every thousand temporary workers. This should be remembered. For one worker of continuous production in four shifts, 6-7 transporters, builders and service personnel are needed. This means that with the transition to the watch-expedition method, the number of those that need to be transported increases 3-4-fold.

Housing in our area is expensive. However even with the wasteful transportation plans and construction technologies for its erection in Nadym and Pangody as

indicated by the 10-year accounting, only 9 percent of the total outlays have been used for building up Medvezh'ye. An investment of 91 percent has been made in design, apparatus and pipelines. During the period of working the field, we moreover spend another 10 million on reconstruction and consider this expedient. At the same time, the apprehension of the development of future unpromising cities in the north does not disappear.

For those same 10 percent, one can obtain many more objects of the social infrastructure, if one even partially abandons traditional technologies and construction. It seems that they have stopped looking at houses made of block-rooms as an outlandish wonder. We have now entered the era of light-weight designs, metal, wooden, including laminated. Local materials, for example, sand and excellent clays which are sufficient here have finally been used. I will not hold back but will advance the suggestion that has been widely discussed in the collectives of the association and other enterprises. Do not acquire construction materials for individual construction in our areas. Why not bring in sets of one-story, two- and four-apartment houses? They would become individual developments. They could be paid for accordingly, for the installation of the object. The houses would be taken on the balance of the enterprise, and the residents who built them would only pay for communal services. The next apartment dwellers would already live on common grounds. We have found out with satisfaction that recently the suggestion about individual construction, including multiple-apartment houses, was legally reinforced in a special decree of the RSFSR Council of Ministers. Active realization of the developed measures with regard for the specific nature of the north will accelerate and reduce the cost of building housing and will put order into "self construction."

"And when the fields disappear nevertheless, what will happen to the cities?" I hear the question of the opponents. Yes the fields are not eternal. But in each one there remains about 5 percent of low-pressure gas which is not profitable to transport great distances. More or less, 5 percent? At Urengoy, for example, there will be slightly less residual raw material than the main reserves of Medvezh'ye. What is to be done then, store the riches underground? Of course not! The remaining fuel is enough for a certain time for generating electricity at the local GRES. The calculations of the economists demonstrate that it is profitable to set up energy-intensive chemical plants next to the fields, and to produce valuable products far from densely populated areas. This is even wiser because both the production and social infrastructure will be created by that time. It is only necessary to reorient the population in time.

According to my concept, it is necessary to build yet another city in the polar north, Yamburg instead of importing a watch here from Nadym and other cities. It would also be useful to examine the question of timely construction of a city at Yamala for developers of a group of oil fields. I believe that a long and interesting life is facing Novyy Urengoy, and my own Nadym, which has become my native city, and the future Yamburg.

Cities are made of concrete, wood and steel. And what of the people? Not everyone can live a long time here because of their state of health or because of peculiarities of their bodies. But in such excellent cities as Baku, Sochi

and Tashkent not everyone can withstand the hot climate or increased humidity for a long time. As for the zones which are suitable and not suitable for life, this division is very conditional from our viewpoint. In Salekharda, beyond the Arctic Circle (!), in the settlements of Tazovskiy, Myse Kamennoye and others, people live and work. For every thousand people in Nadym, 16 children were born every year in 1977-1979. There are 5000 children in the schools.

At the same time every flight from the earth into the high latitudes and back, especially from September through May, removes the body from the normal condition for 3-5 days. Medicine and biology do not have sufficient data to foresee and evaluate the conditions of the watch-expedition work, to predict its immediate and distant consequences. This is the assertion of one of the developers of the research program "Watch," the senior scientific colleague of the Institute of Plant Physiology and Biochemistry of the Siberian Department of the USSR Academy of Sciences, V. Osipovich. The discussion is whether it is worth it to develop settlements and cities in the regions of new development, "artificially restrain the creation of a social infrastructure, and therefore avoid this extreme." The authors came to this conclusion in the technical-economic report that was issued by the Giprotymen'neftegaz. Here is what they further write: "the scales of using the watch-expedition method should primarily be determined not by the criteria for efficiency, but all possible protection of health of the workers. The method which a fortiori stipulates regular lengthy separation of family and physical, as well as psychological loads, can be defined as forced by circumstances."

The consequences of orientation on temporary stay in our regions, which are rooted at different levels of the managerial hierarchy, and it is no secret, in the central planning agencies, are felt at every step. The supports of the high power transmission lines are beginning to fall in places. Or a fair piece of the railroad line is carried away by high water. All of this was made by temporary people for temporary use. I have been pondering this for all the 10 years that I have been living in the north: where is the economy?

Ship people in or settle, that is the question. I am not a proponent of extremes, and therefore assume that in solving such a complicated problem it is necessary to start from economic and social expediency, and to comprehensively weigh all the circumstances.

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## GENERAL

### NERYUNGRI HOUSING CONSTRUCTION DESCRIBED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 5 Jun 82 p 1

[Article by L. Rybakovskiy: "What the City Starts From"]

[Text] We are traveling from facility to facility with the head of the specialized administration for zero-point operations of the combine "Yakutuglestroy" A. Misikov. The facilities are surprisingly similar. These are foundations of the future 87- and 116-apartment houses, concrete channels of engineering piping to them, housings for the sewer wells.

"Installation of large-panel housing is beginning here on schedule in 2-3 months, and the 'zeros' are almost completely ready," Alik Dzaganovich says satisfactorily.

Although the SSU-11, the abbreviated name for the administration, has existed for 6 years, it has been considered specialized, perhaps only by name until 1981 among the subdivisions of the South Yakutsk coal complex. Its functions have mainly been reduced to excavation operations and laying reinforced concrete gutters and spans. Sanitary engineers were taken for the engineering networks from one administration, insulators from another, cable-layers from a third, and the foundations were built by workers from yet a fourth. There were a lot of mutual claims, disputes, and consequently, all kinds of alterations, and the results were not comforting, for the collective was constantly on the list of the laggards.

A. Misikov, still the chief engineer of the administration became the active initiator for erecting zero-point cycles together with engineering networks by the forces of one collective. It would seem that this was a classic plan which has long been confirmed at the majority of construction sites. But, he recalls, he had to fight a lot for the idea. There was the opinion: "the networks were overloaded, the 'zeros' will also be overloaded." Nevertheless the arguments that the new order of work would reduce the periods for construction, decrease outlays, and provide comprehensive and smooth installation of the facilities prevailed.

What did this give to the collective and construction site? Whereas in 1979 the plan for construction-installation operations was fulfilled by 35.4 percent, in 1980, by 45.9 percent, in the account of last year the number 103 percent

appeared. And this is with the fact that the volume of construction and installation more than doubled. This is what is curious: labor productivity increased just as much. The administration cut losses in half and conserved almost R 700,000 of materials, electricity and other resources. This labor victory of the collective was rewarded by the challenge red banner of the CPSU Central Committee, USSR Council of Ministers, AUCCTU and Komsomol Central Committee.

Today the "zero-point workers" are constantly among the winners of the labor watch which is taking place under the motto "60 intensive weeks for the 60th anniversary of the formation of the USSR." The plan for construction-installation operations is overfulfilled from month to month.

Improvement in organization of labor, imposition of order improved the climate in the collective. Last year there was almost a 30 percent decrease in personnel turnover. A situation of mutual trust and exactingness has developed in the collective. The leaders believe that there are no poor brigades in the administration, and it is necessary merely to make better use of the strong aspects and features of each. From the brigade of Shlak, for example, the output will be greater at a facility where there is no hurry-scurry. By the way, he does not need any special monitoring, because he is a very responsible person. Ponomarenko copes with the excavation operations faster and better than all. And in emergency situations, and these do occur, Kostyk is irreplaceable.

The collective of the administration has decided to complete the plan for the current anniversary year by 25 December and to additionally perform construction-installation operations for no less than R 200,000. Schedules have been defined for finishing every zero-point cycle, real potentialities for each team have been weighed. The heads of the sections, foremen and brigade foremen are fundamentally discussing monthly and weekly plans, trying to stipulate reliable preventive measures in the case of a certain delay.

Alik Dzaganovich once again glances at the construction site and smiles.

"Each time we start from zero in a literal sense. It may seem that our facilities are not garish and not prestigious. Neryungri is beginning precisely from them."

It seemed to me that it is much more important that the city is beginning from those such as Misikov and his comrades, people who are enthusiastic, initiators with a business-like attitude.

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GENERAL

BLAME DISTRIBUTED FOR CONSTRUCTION LAGGING

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Jun 82 p 2

[Article by Yu. Belanov, in-house correspondent: "Why the New Settlement Did Not Take Place"]

[Text] The people of Volgograd have formed a construction subdivision and sent it to Nefteyugansk in order to help the oil workers of West Siberia. However for a long time SU-10 "Volgogradgidrostroy" was not able to complete even one house. Why?

Here are some excerpts from telegrams, letters and other documents.

"Irkutskiy CPSU obkom, to the first secretary N. Bannikov:

Copy: Bratsk Irkutskoy, settlement Padun, head of Bratskgesstroy, Comrade Yatsenko.

The combine "Bratskzhelezobeton" must supply Nefteyugansk with 9000 cubic meters of reinforced concrete for SU-10 of the trust "Volgogradgidrostroy" before 1 September 1981. Only 170 cubic meters have been received. Repeated appeals to the head of the combine have not yielded any results.

Secretary of the Nefteyugansk CPSU gorkom Oleynik."

From a letter of the Communists of the SU-10 of the trust "Volgogradgidrostroy" to the first secretary of the Volgograd CPSU obkom L. Kulichenko:

"The houses of series 125 are completed with items which are manufactured by the combine "Bratskzhelezobeton" of Bratskgesstroy of the USSR Ministry of Power and Electrification. The strivings and plans of the Volga residents who came to build housing for the workers of Nefteyugansk were dashed against this reinforced concrete. Time passes and the assignment is not being fulfilled. We are embarrassed to look into the eyes of the oil workers."

There were many other letters and telegrams regarding different instances. However, as asserted in the report on fulfillment of the construction-installation operations of SU-10 of the trust "Volgogradgidrostroy" during the entire past and first quarter of 1982, because of an interruption in supplies of precast reinforced concrete, not a single square meter of housing was provided for the oil workers. What is the matter?

Back in October of 1980, the head of SU-10 of the trust "Volgogradgidrostroy" A. Kanishchev came to Bratsk to conclude a contract for supplies by the combine "Bratskzhelezbekon" for precast structures for houses.

"Even then I felt," Aleksandr Fedorovich sadly recalls, "that it would be difficult for our supplier and that without pressure he would not give us the house parts."

This was reflected in the contract signed on 13 February 1981. I will quote "'Bratskgesstroy' is obliged to supply 'Volgogradgidrostroy' with 9000 m<sup>3</sup> of precast reinforced concrete parts in the second-fourth quarters of 1981 on the condition that the customer before 1 March will provide to the manufacturer direct transfer of all resources for the planned volume of house construction parts."

We will interpret: "direct transfer of all resources" means that the contract will not be filled if the customer simply transfers funds. "Funds mean paper," announced the heads of the combine. "You will provide the supplier with cement and other materials in full scale." The situation, to put it mildly, is surprising for a unified fund for a system of financing supplies has been adopted at the enterprises in which the customer must transfer in a centralized order to the manufacturing plant the funds for material resources and obtain from it the finished product.

Two central boards took up the question of solving the task of how to supply cement from point V (city Volzhsk) to point B (city Bratsk): Glavzavodspetsstroy and Glavenergopromkomplekstroy. It was solved in the space of several months. In November alone 650 T of cement were shipped to Bratsk. The deputy director of the combine V. Lyushnin in an official letter assured the citizens of Volgograd that in November Nefteyugansk will send 1400 and in December 1650 m<sup>3</sup> of precast reinforced concrete for houses.

But yet another point of the contract, 7 A, went into force. It was formulated by the Bratsk party in a manner far from friendly: shipments of precast reinforced concrete to Nefteyugansk must be made by cars from the in-house fleet of "Volgogradgidrostroy."

The head of the trust B. Mikhaylov could not agree with such a situation (the trust does not have its own railroad fleet) and sent the matter for arbitration. There, based on the fact that questions of the disputing sides were resolved by the deputy minister of power and electrification of the USSR, A. Semenov, it was decided "point 7 A would remain without examination."

An explanation is required here. In fact, back in March 1981, long before the examination in arbitration, A. Semenov officially approved the instruction (No AS-4617) in which it was written black on white: "Shipment of reinforced concrete structures to the combine will be made by cars of the Ministry of Communications. (That is, cars which are planned monthly by the railroad workers for Bratskgesstroy--Yu. B.). The shipment of reinforced concrete structures for Nefteyugansk will be made before 1 September 1981."

I now assume that it is understandable why the arbitration decided to "leave without examination" the disputed question. The lawyers correctly calculated

that the deputy minister did not like to joke and would take his own instructions under strict control.

This is what happened in fact: before 1 September not a single cubic meter of reinforced concrete was shipped. Only at the end of the year did Nefteyugansk receive about 2000 m<sup>3</sup>. In order to explain the reasons for the flagrant lack of discipline, we had to fly to Bratsk. "There is nothing to ship the products in," says the deputy director of the combine V. Lyushnin. "The Ministry of Communications does not fulfill the plan for supplying us cars from year to year. Last year we did not receive 5161. The situation did not improve at all in the first quarter of this year. Consequently, an interruption in supplies of house building parts to the Siberian people is the fault of the railroad workers."

It goes without saying that it is. The situation will not change until an "revolving door" begins to run between Bratsk and Nefteyugansk, a constant railroad fleet designed for shipping house building parts to the Siberian people. This is both reliable and economically efficient. However two ministries (Ministry of Communications and the USSR Ministry of Power and Electrification) have not yet been able to agree among themselves.

We had to make another flight, this time from Bratsk to Moscow, to the Ministry of Power and Electrification. Here I asked the head of Glavenergopromkomplekstroy V. Fomenko to comment on the Nefteyuganskiy EO [extraordinary occurrence] (there is no other name for this interruption).

"Irresponsibility, there is no other word to explain these facts," Vladislav Aleksandrovich honestly said with self criticism. "The services of our center board are guilty for this, and primarily the leadership of the Bratskgesstroy which is subordinate to us. We will immediately correct the situation."

I would like to hope that this will happen: this time the USSR Ministry of Power and Electrification will properly examine those facilities of residential and cultural-general construction for which its subordinate organizations are responsible.

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## GENERAL

### POTENTIALITIES OF MANGYSHLAK TPC EXAMINED

Moscow EKONOMICHESKAYA GAZETA in Russian No 31, Jul 82 p 14

[Article by I. Gribov, senior scientific colleague of the Council to Study the Production Forces of the USSR Gosplan, candidate of economic sciences: "Mangyshlak Complex"]

[Text] The Mangyshlak territorial-production complex has been formed on the base of rich natural resources. The Caspian Sea on whose eastern border the territorial-production complex (TPC) is located creates favorable conditions for the development of economic ties with the central regions of the country, the Turkmen and Azerbaijan republics. The sea and its basin are rich in biological, mineral and chemical resources.

All of this defined the specialization of the complex. The oil extracting, gas refining and chemical sectors of industry, as well as fishing and production of construction materials participate in the national division of labor. Over 16 million T of oil, including gas condensate, about 3.5 billion m<sup>3</sup> of gas, over 350,000 m<sup>3</sup> of shell rock and about 30,000 T of fish were produced here in 1981. High rates of industrial production are characteristic for the Mangyshlak TPC in the 11th Five-Year Plan. Whereas the growth for all the industrial products in Kazakhstan as compared to the previous five-year plan is stipulated for 25 percent, then its growth in the Mangyshlaksкая Oblast is for 69.8 percent.

#### Profiling Sector

The basis for the TPC is oil and gas reserves. Their extraction in the already developed Uzen' and Zhetybay fields has reached a stable level. They have been comprehensively automated on a broad scale. The gas-lift method of extraction is used and modern hydraulic pump jacks have been installed in the wells. Other measures are also being taken to maintain the level of oil extraction. Its increase is attained through the development of new fields, and in particular, on the Buzachi Peninsula where oil extraction will be 8-10 million T per year. However these fields are distant from inhabited regions and their development is association with a lot of work.

The Kalamkas field, for example, was periodically flooded with sea water before its development. It was necessary to build a causeway dam. In addition, all the work to build up the field had to be done on a swampy marsh which did not recede even in the sultry summer.

The "Buzachi Headquarters" that was set up in the Mangyshlak party obkom did a lot of organizational work to develop the peninsula. Powerful mechanized teams went from Shevchenko and Novyy Uzen'. Brigades of road builders came by airplane by the watch method from Alma-Ata. Equipment arrived in a continuous stream and workers and specialists came from all corners of the country. All of this made it possible to start up the oil pipeline Kalamkas-Karazhanbas-Shevchenko, the Kalamkas-Shevchenko road, the power transmission towers and well-built watch settlements ahead of the standard schedule.

A large industrial experiment is underway on the Mangyshlak fields for multi-stage thermal flooding. Special units have been installed for preparation and injection of hot water into the oil beds. At the Uzen' field alone, this requires about 150,000 m<sup>3</sup> of water per day.

The main mass of water is supplied to the fields on the water line from the Caspian Sea. There is another water line Amudar'ya-Novyy Uzen'. But the water from it is partially taken by other consumers and there is not enough for the oil fields. Injection of salty sea water results in plugging of the oil wells. Therefore desalination complexes are being installed in the fields, in particular on the Buzachi Peninsula. They freshen and heat the salty water for injection into the oil beds.

Oil extraction is associated with an increase in the volume of geophysical and drilling operations on promising areas, and under more complicated geological conditions and in deeper levels. However, the insufficient methodological base for prospecting and exploration has resulted in a drastic lagging in the preparation of promising fields. The scientific collectives of the Ministry of the Oil Industry therefore need to accelerate the development and introduction of methods for geological-economic evaluation of the mineral fields, and primarily at deep levels.

Another, no less urgent problem remains to be solved, organization of comprehensive use of natural resources. The Buzachi oil contains many valuable components which are not currently used. The Uzen' oil is rich in paraffin, the raw material for the production of protein-vitamin concentrates.

Effective solution to this problem is only possible with strict balance in the development of the corresponding industries. Deviation from this creates disproportions.

For example, the output of styrene, impact-resistant polystyrene and other products of the Shevchenko plant of plastics has been limited by the shipments of ethane. As a result of the technical re-equipping of the Kazakh gas refinery in Novyy Uzen', ethane has not only ceased to be scarce, but has even become surplus because of the insufficient shipments of benzene and rubber manufactured outside the Mangyshlak TPC.

#### Construction Problems

It is common knowledge that a fast-neutron atomic reactor is operating in Shevchenko. It provides steam for the turbine unit and desalination of sea water. In the 11th Five-Year Plan, the energy output of the TPC will

increase and construction of the TETs-2 is being accelerated. However the needs for energy resources are rapidly rising. It is apparently expedient for the energy system of Mangyshlak to be included into the country's unified power engineering system.

The TPC is also developing transportation arteries. High-power transmission line towers have been erected, the railroad network is being enlarged and the Kalamkas-Shevchenko oil pipeline was opened ahead of schedule.

During the five-year plan, the truck shipments will rise 1.2-fold. Well-organized roads are being built to the oil and gas fields of the complex.

The weak spot in the development of the TPC is the organization of construction. In the 11th Five-Year Plan the volume of industrial production of Mangyshlak must be increased 1.6-fold, the main funds 1.4-fold, and the volume of capital investments 1.5-fold. Realization of these plans depends a lot on the builders. Many resources are still scattered over numerous facilities however. They are not sufficiently concentrated on the start-up construction sites. Many facilities in Shevchenko are still in the started state.

The capital investments in the new oil region of Buzachi are not satisfactorily assimilated. During the five-year plan it remains to assimilate R 230 million here. This means that it is necessary to drill hundreds of wells, prepare reservoirs for collecting oil and its transporting, and implement a whole set of complicated technical solutions.

There are many opportunities for strengthening the local construction industry which is still not completely developed. At times the builders are in acute need of construction materials which are hauled in from afar, for example, the brick, although there is the possibility of producing it locally.

The richest fields of limestone-shell rock are very important for the builders. They can be used not only for construction material, but also as raw material for production of calcium carbide and calcined soda, lime and Portland cement. But the rock is worked with the help of old machines and mechanisms which results in high losses of raw material.

There are also sandstones, sandy-gravel deposits, chalk, clay and sand. The barite and barite-celestine ore fields of Aurshat are very important. It is possible to obtain strontium salts and scarce drilling fluid weighting compounds here. Large formations of bituminous rocks (kirs) are suitable for construction of roads and production of roofing materials. The use of all these resources and the creation of facilities for developing them are very effective as calculations have shown.

#### Social Transformations

The natural-climate conditions of Mangyshlak make it possible to satisfy the demands of the TPC for agricultural products only by 15 percent. The rest has to be brought in. Sheep raising has been relatively stably developed. The head of sheep during the 10th Five-Year Plan averaged 585,400 versus 379,300 in the Ninth. There was a considerable increase in the production of meat, wool and karakul lambskins. There are great reserves for the

development of horse breeding and camel raising. The desert pastures have not yet been completely utilized.

Among the basic tasks for the Kazakh SSR in the USSR Food Program is a plan to put into operation in the decade 820,000 hectares of irrigated land and to flood in the desert and semidesert regions no less than 22 million hectares of pastures and to build a network of group water pipelines for agricultural purpose.

These program tasks completely refer to the agroindustrial complex of the Mangyshlak TPC as well. Here with regard for the available water resources and the purified waste water it will be possible in the future, according to the calculations of the specialists, to develop about 12,500 hectares for irrigated farming.

The experience of the sovkhos imeni Il'ich in the Mangisauskiy Rayon which has specialized in the raising of karakul sheep and horses indicates the reality of these tasks. Last year the sovkhos gave the state 17,700 karakul lambskins.

The network of auxiliary services of the industrial enterprises is expanding in the TPC. For example, a sovkhos has already been set up in the Tauchik settlement for raising camel. It supplies the oil workers of the Buzachi Peninsula with wholesome and tasty dairy product, shubat.

The economic development of the coastal regions advances the problem of searching for efficient means of settlement. The structure of industrial production where the key sector is oil extraction determines the focal nature of settlement a great deal. The so-called watch method of working where labor activity is alternated directly at the fields with resting at the site of permanent residence has become widespread at the new fields of the Buzachi peninsula.

The development of industry in the coastal regions must not result in pollution of the land and sea. It is doubly necessary at Mangyshlak therefore to develop and realize comprehensive measures for protection and use of biological, therapeutic-health resort and recreational resources of the region.

The problem of using the discharged brines from the atomic desalination units should be solved. One can obtain a number of chemical products from these brines, up to 80,000 T of first-class sodium sulfate, 240,000 T of salt, 200 T per year of bromine. The net cost of these products will be much lower than, for example, in the production association "Karabogazsul'fat." This will improve the satisfaction of the national economic needs for scarce products and will improve the economic effectiveness of desalinating the sea water.

Mangyshlak has a number of favorable factors for organization of sanatorium-health resort treatment: the non-freezing Caspian Sea, abundance of sun, reserves of mineralized water, and therapeutic mud. The organization of recreation and treatment of the workers will permit a more purposeful and effective development of the riches of this unique region, and will convert it into a national treatment center.

A comprehensive program which would outline the paths for long-term development of the region is needed for the successful formation and development of the TPC. But in addition, it would be expedient to set up a special commission for the experience of the West Siberian oil and gas complex. The activity of this commission would permit a better combination and direction of the sector and territorial interests in the formation and development of the TPC.

9035

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## GENERAL

### EKIBASTUZ EXPERIENCES ACUTE HOUSING SHORTAGE

Moscow TRUD in Russian 22 Jun 82 p 2

[Article by V. Bugayev, TRUD correspondent: "Thousands of Builders, Miners and Power Engineers Developing the Ekibastuz Fuel and Energy Complex Tire of Waiting for the New Settlements"]

[Text] The industrial Ekibastuz has become one of the most popular cities of Kazakhstan in recent years. And it should for in the Pavlodar Priishim'ye in addition to other sectors of the national economy, the coal industry has begun to be developed and power engineering is beginning to stand on its feet. The builders, installers and specialists in power engineering and mining are erecting and developing the Ekibastuz fuel and energy complex (EFEC).

But here is the misfortune: many of those arriving at best can count on a bed in a dormitory, and not on well-built housing. And there is not even enough. The enthusiasts have to return to old inhabited places. At the same time the ETEC is experiencing an acute shortage of personnel.

Technical electrician Yuriy Lapin came to Ekibastuz from Chelyabinsk by request. After becoming familiar with his documents, the section of personnel for the GRES-1 under construction was satisfied: the fellow had finished the evening technical school, had a specialty of electrician of the sixth order and had learned how to work. He was lucky: he immediately got a place in the dormitory, and soon a more substantial living area. Of course Lapin did not get a mansion. The floors were decrepit and the doors did not close tightly. The roof leaked and there was not enough heat. This was not for long, temporary, the authorities told him. Live here a little while and you will obtain a new apartment in a new house. Lapin understood the difficulties with housing. He decided, naturally, to be patient. He brought in his wife and daughter and began to live quietly and to work. However when he requested a place in the line for obtaining well-built housing he was suddenly refused.

The experienced worker was greatly offended, shrugged his shoulders at everything and went back to Chelyabinsk. About 40 percent of those arriving to work at this enterprise have the same experience as Yuriy Lapin. Today

there are 2,470 people working at the station, and more than half of them are in dire need of well-built apartments. Almost all of them currently live in dormitories. The power engineers receive a total of 100-150 apartments per year. The situation will be even more complicated in the future. Only four energy units out of eight are operating at the station. The fifth is near completion and the installation of the sixth is underway at intensive rates. People are needed to work on them. But where will they live?

Other large enterprises of the city are experiencing the most acute shortage of housing: the production association "Ekibastuzgol'," the combine "Ekibastuzshakhtostroy," and the trust "Ekibastuzenergostroy." We do not have to discuss the smaller ones. The 1981 plan for introduction of housing in the city was only fulfilled by 85 percent. It was interrupted in the first quarter of this year.

The problem of building social-cultural-general facilities is no less acute. I was given the following information in the gorispolkom. The supply of trading areas for the people of Ekibastuz is only 63 percent of the standard, schools and preschool institutions only 55.6 percent, public nutrition enterprises and general services, 29.8 percent. At the same time, the construction of the facilities of cultural and general purpose is going very poorly. Last year, for example, the trust "Ekibastuzenergostroy" assimilated R 425,000 for their construction instead of R 1.260 million. Another contractor, the combine "Ekibastuzshakhtostroy" assimilated only R 730,000 out of R 1.6 million. Of the 18 facilities of social-cultural-general purpose, only four have been opened. The people of Ekibastuz have not been able to obtain a trade center, general self-service store, store, cafeteria, two kindergartens, pharmacy, savings bank, movie theater, hotel, professional technical school, and so on.

How can one explain such a cool attitude to the construction of housing and the social-general facilities in Ekibastuz? The fact is that from the first days of development of the ETEC, its two main builders, the USSR Ministry of the Coal Industry and the USSR Ministry of Power and Electrification, in the old, moss-covered tradition have focused primary attention on the construction of industrial objects and have pushed housing and social-cultural-general facilities to the background.

This is precisely the explanation for the fact that the USSR Ministry of Power and Electrification has started to erect its percentage of the housing through imported construction parts, not at all worrying about the creation of a local production base for the trust "Ekibastuzenergostroy" and its administration "Energozhilstroy." The house parts are brought here from Yermak, Rudniyy and Naberezhnyye Chelnyy. This latitude of the geography of shipments leads to no good. First of all the leaders of the trust are not capable of seeing that the shipments are smooth. The enterprises of the construction industry are not in direct subordination to them, and the USSR Ministry of Energy and Electrification to whom they are directly subordinate has not given them a hand.

"How does this reflect on our work?" one of the best brigade foremen of the masonry installers from the construction administration "Energozhilstroy"

K. Beysimbekov sadly repeats. "Just this: instead of 7 days, my brigade installs a story in 10-12 days. Here is another example. We are making the ground floor of a building, and instead of the parts and blocks for the first floor, the Yermakov plant of reinforced concrete items sent us the fifth floor. Because of the shortage of structural parts and lags the collective is divided into parts and is shifted from facility to facility."

The misfortune is also that knowingly defective products are sent. The wall panels, flooring, balconies, and flights of stairs come to the construction site with considerable deviations from the standard. Some of them are poorly finished, with curvature and the insertion pieces are filled with concrete. Because of frequent handling associated with shipping, the designs simply fall apart and become unsuitable for use. It is easy to guess what this leads to. The specialists of the same administration "Energozhilstroy" have computed: additional outlays for each house built last year were R 25,000. In addition, the quality of the produced housing has diminished.

It is impossible to say that the USSR Ministry of Power and Electrification does not see its miscalculations. It recently made many truly correct and useful decisions and worked out good measures for improving housing construction in Ekibastuz. Nevertheless the work is advancing very slowly. We will take the same development of the in-house base of the construction industry. Several years ago the ministry decided to construct in the city a plant for large-panel house construction. However, the beginning of its construction has been delayed from year to year. The power engineers must annually finish 75,00 m<sup>2</sup> of housing. Now only 50,000 are built. The production base is restrained.

A similar situation has developed with the constructing of housing for the coal miners. The situation is poor at the combine "Ekibastuzshakhtostroy." It has not been fulfilling the plan for many years. Last year, for example, the mine builders underproduced 21,000 m<sup>2</sup> of housing for the plan. The reasons for their unsatisfactory work are: worthless organization of labor at the construction sites, shortage of personnel and again the weak production base.

Of course, the question of strengthening the base of the construction industry of local construction organizations cannot be solved with the wave of a magician's wand. This requires time. Not months, years. Nevertheless, one should also not wait for manna from heaven. It is apparently necessary not only to make haste to eliminate the permitted miscalculations, but also to find some other means of forcing the construction of housing and the social-cultural-general facilities. This can only be done by developing the construction by economic method.

Many enterprises of the republic have this experience. Take, for example, the Karaganda automobile workers. They build hundreds of apartments for themselves every year. This is a great and useful business which is under constant control of the obkom of the trade union of workers of automobile transport and highways, and the trade union organizations of automobile transport enterprises. The same production association "Ekibastuzugol" for several years has been building facilities of social purpose by the economic method. Last year alone it built more than 10,000 m<sup>2</sup> of housing.

This is 200 additional apartments. Unfortunately, there are few of these enterprises in the city.

The initiative of the Pavlodar builders who last year took over patronage of Ekibastuz and built for the coal miners 12,000 m<sup>2</sup> of housing should be supported in every way. They have been obliged to also put into operation a school, kindergarten and will continue to build houses as well.

The climate of North Kazakhstan is harsh. Winter here rages with frost and piercing winds. In summer there is a burning heat. Ekibastuz itself is located in the boundless steppes. There is sparse, plain vegetation and one can travel for tens of kilometers without even seeing a tree. However the depths are rich in the severe kray. And truly the people control great things. Enthusiasts come from all corners of the country to help them, not afraid of difficulties. They come to build the ETEC. They come for many years. Perhaps forever. Ekibastuz is in great need of workers. Every person is dear. Therefore concern for him, for his house, daily life and leisure time must be in the foreground.

9035

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## GENERAL

### NEW DESIGNS ADVOCATED FOR TYUMEN' SETTLEMENT HOUSE CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 4 Jun 82 p 3

[Article by I. Varshavskiy, head of Glavzapsibzhilstroy: "Settlement on the Route"]

[Text] Our country currently obtains every second ton of oil and every third cubic meter of gas from the fields of the Tyumenskaya Oblast. The rates of extraction and transporting of the valuable raw material and fuel are increasing all the time. New fields are appearing on the geological map of the region and the arteries of the new transportation systems are rapidly advancing to the center and west of the country.

The construction of new main oil and gas pipelines and compressor stations is being carried out by the watch-expedition method as well. In this case the workers and specialists make thousand-kilometer flights to the work site and back home. As practice has demonstrated, these trips not only result in a rise in the cost of the work, but also have a negative effect on the performance capacity of the people.

The watch method becomes more effective when the shipment route to the work site does not exceed 200-300 km, and normal living-general conditions are provided on the route. Consequently, it is necessary to develop both the base cities and the watch settlements at accelerated rates.

The facilities of the subdivisions of Glavzapzhilstroy which are erecting housing and the enterprises of social and cultural-general purpose, have now significantly risen. We are already producing 600,000 m<sup>2</sup> of completely-assembled housing per year. We count on increasing this number somewhat in the near future. However, as calculations show, even with regard for the unused reserves, we will not be able to satisfy the needs of the oil and gas extractors in a short time if we only use the established methods and procedures for building up the regions of difficult access.

In our opinion, one of the ways to accelerate the solution to the housing problem in the watch settlements, at the compressor stations, and other small populated areas is to build wooden houses. But the effectiveness of this type of house-building will be higher if we switch to producing modular

wooden blocks of complete readiness under plant conditions, with inner and outer finishing, sanitary engineering assemblies, other engineering equipment and built-in furniture. This block is essentially a finished modular design of the future home.

Among the advantages of the wooden modular-block house-building for territories of difficult access that are not very developed is the low weight of each of the blocks, up to 5 T, that is, four-five-fold lighter than reinforced concrete. Under conditions of the Tyumenskaya Oblast where the construction site may be up to 1,500 km from the house-building combine, the reduction in weight plays a special role. In addition, the labor outlays for construction with such high plant readiness of the blocks are diminished to 0.5 man-days per square meter of total area.

The first steps have been taken in this direction. In the middle of last year, the USSR Ministry of Timber, Pulp and Paper, and Wood Processing Industry gave our central board the Vinzilinskiy combine not far from Tyumen'. After some reconstruction, the Vinzilinskiy house-building combine switched to producing the new product.

The State Institute for Planning Enterprises of the Timber and Wood Processing Industry, Tyumen' Siberian Scientific Research and Planning Institute of Gas Pipeline Construction developed a draft for a two-story, 24-apartment house consisting of 84 blocks. Each of these blocks is an almost complete room. The corresponding attachments to facilitate transporting of the modular elements were stipulated. The first 10 houses have already been installed near Tyumen'. Before the end of this year, we count on producing 7,000 modular blocks, of which we will install 100,000 m<sup>2</sup>. We plan to double this number in the future.

It would consequently be expedient to work out a comprehensive target program with the participation of the institutes of the USSR Gosstroy for the development of wooden house construction in West Siberia. As it seems to us, standard base and watch settlements should be set up for 2,000-5,000 residents in the block-complete design.

An urgent problem which needs to be resolved today is the selection of the transportation vehicles for shipping the blocks to the construction sites with regard for the poorly developed network of the Tyumen' roads. There are several variants for solving this task.

For those regions of the oblast which are linked to Tyumen' by railroad, the revolving cars are quite acceptable. The blocks loaded on them and the equipment needed for installation will be accompanied by the construction brigade. Arriving at the site, the mobile team will assemble the house in a short time and turn it over to the customer. The same construction-installation team can be sent with the blocks of the future houses and equipment to the facility on self-propelled barges if there are approaches by water.

If there are absolutely no roads (there are a lot of places like this in the Tyumenskaya Oblast), a third variant is possible. The blocks are sent to the accumulation warehouses by water or railroad, and from here they are shipped

and assembled with the help of the helicopter "Mi-10K." This experiment of assembling houses from the air has already been conducted near Tyumen'.

Now many departments in our oblast are trying to set up their own manufacture of wooden houses. In this plan it is very difficult to create unified architecturally-planned composites. These houses do not meet the harsh conditions of the north. Apparently, it is expedient to create a unified catalogue of designs for industrial wooden buildings for residential and social-general construction, having stipulated special variants for the north in it.

The Siberian Scientific Research Institute of Economics and Planning recently developed important technical solutions for modular-block houses for the Tyumen' north which permit a double reduction in the weight of the structures, improvement in plant readiness and reduction in the installation rates. However in order to realize these decisions, it is necessary to have progressive materials whose shipments have not yet been stipulated: water-resistant plywood, heater made of polymer raw material and others. The solution to this question depends on the USSR Gosnab. In order to set up an intensive plant conveyor for the fabrication of wooden houses, the appropriate highly mechanized production lines are needed. Here we need the help of the Ministry of Machine Tool and Tool Building Industry.

If the solution to these problems is not shelved, then in the next year or two we will obtain a weighty addition to the available facilities of house construction.

9035

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GENERAL

MOBILE WORKERS' SUPPLY ON URENGOY-PETROVSK LINE EXPLAINED

Moscow IZVESTIYA in Russian 30 Jun 82 p 2

[Article by V. Zimon, journalist: "At the Order of the Buyers"]

[Text] The readers of IZVESTIYA asked for a discussion of the system of worker supply at construction of the main gas pipelines of West Siberia-center of the country. The editorial board assigned journalist V. Zimon to visit one of the sections of the Urengou-Petrovsk line and become familiar with the organization of trade there. This is what he reported.

The telephone ring interrupted our conversation with the head of the Yeletsk department of workers' supply of the trust "Shekingazstroy" L. Zhuravleva. The conversation was brief.

"Here is the answer to your question," Larisa Mitrofanovna says with a smile. "They called from one of the sections in the system of main gas pipelines. They have been asking since morning for a shop-mobile to be sent."

The builders of SUZR-2 from the trust "Shekingazstroy" have traversed their 90-kilometer section of the Urengoy-Petrovsk route ahead of schedule. The route was not easy. They had to cross two railroad junctions, six automobile trunklines, over a hundred ravines, and make forced crossings of the Sosna and Don rivers. The buses with people are coming to the territory of the field city. They are met at the gates by wives and children. Smiles immediately light up on the tired faces of the builders. Then in families they head for the square where the doors of the route store on wheels are wide open, the shop-mobile.

"Here are fluffy furs, calicoes and velvets, come and pounce," merchandising specialist and seller N. Malykh opens his trade jokingly, imitating the cry of a fair caller. The square immediately becomes noisy. One is measuring a fur coat, another boots, another a dress. "We have long ago established a notebook for consumer demand," explains the head of the department of workers' supply (ors). "There has not yet been a single case of non-fulfillment of the builders' orders. The route workers especially love Nikolay Antonovich. He has been on the route for over 20 years and knows all the needs."



The trade goes in turns. Measurement, discussions, new orders. There is literally everything in the assortment of the industrial goods of the Main Administration of Workers' Supply of the Ministry of Construction of Oil and Gas Industry Enterprises, from needles to cars. Life is life. On the route the housewife cannot do without household implements, clothes and decorations. But let us talk with the route workers themselves who have already made purchases.

The economist Valentina Zagorul'ko: "Today I bought sheets. The shop-mobile is our frequent guest. There is always a large selection."

Excavator Anatoliy Sinitsin: "I bought a new dress for my wife. They say that it is the most stylish. There is always the possibility of making my wife happy with a gift, or the children. In a word, they supply us as we need."

Worker Galina-Kudinova: "I would like to say that I am a housewife. In our shop-mobile there is always a large selection of different products. No matter how they cook in the cafeteria, my husband likes to eat at home more. Thus I have the opportunity of obliging him."

Head of the section Viktor Kudinov: "We work well. Often ahead of the schedule. Correspondingly our wages are high. Therefore the majority of workers buy goods of increased demand, color televisions, rugs and cars. The right to first acquisition of these goods is one of the forms of incentive for excellent work indicators. It should be said that in these cases the workers of ours are continually helping us. Of course there are difficulties sometimes. If the necessary commodity is not in the local warehouse, then it is rapidly sent from another. In a word, there is no need to go somewhere to get something because we have everything because of the constant concern of the ours workers. They serve us excellently."

The shop-mobile leaves the city late in the evening.

"Now to the base to load up," N. Malykh says tiredly. "On the road again tomorrow."

The route needs not only steel pipes and reinforced concrete, but also needles, nice clothing and everything for organized daily life.

The editorial staff asked the head of the Main Administration for Workers' Supply of the USSR Ministry of Construction of Oil and Gas Industry Enterprises, A. Barinov, to comment on the journalist's report.

We service over a hundred thousand people working practically on the entire territory of the Soviet Union, from Komsomol'sk-na-Amur to Brest and from Yamal to Kushka. We focus the primary attention on the builders of the gas transport systems West Siberia-center of the country. Because of the large number of people engaged in construction, construction of cafeterias for 120, 240 and 360 seats, warehouses, vegetable storage and refrigeration units is widespread in the field settlements.

The shop-mobile is only one of the numerous forms of serving the route workers. Industrial and food products (our commodity turnover is R 560 million per year) are supplied to the sections by airplanes, helicopters, river fleet ships and four-wheel drive vehicles.

I would like to especially dwell on the organization of feeding the route workers. This is one of the complicated problems for the workers of the Main Administration for Workers' Supply (Glavurs) and it is sometimes not easy to resolve. Mobile bakeries are working in the active field cities. Electric hot plates, heat-resistant cupboards have been installed everywhere, in a word, the entire set of technological equipment needed for the preparation of food under field conditions. These food stations operate round-the-clock since the construction of the oil and gas pipelines is on a continuous schedule. Many pipeline routes pass through places which, for example during the thawing period, are cut off from the land by river floods or by swamp bogs. A powerful network of stationary warehouses and coolers has been set up in these regions. They provide a 200-day reserve of food products. The construction of these facilities is continuing at high rates. I will cite an example. Last year a vegetable warehouse was constructed for 11,000 T, as much as during the entire past five-year plan.

Of course a lot has been done, and done with high quality. But it would be incorrect to say that all questions have been exhausted, that everyone is happy with everything. There are frequent cases where claims are made about the quality of the food in the cafeteria and its variety. For precisely this reason we are now paying more attention to the quality of the dishes. It seems to us that the problem here is precisely in the cadres. The Ministry of Construction of Oil and Gas Industry Enterprises has three specialized culinary schools, in Leningrad, Arzamas and Rostov. The future route cooks receive specialized training in them. Altogether there are 4,350 cooks working on the routes of our country. Last year alone 1,300 of them improved their qualification. All-possible competitions are continually held and competitions for cooking and trips to exchange experience. Our cooks prepare dishes of any nationality for any taste.

We know that IZVESTIYA is conducting an all-union competition for the best new consumer goods. I believe that questions of trade, and in particular, the work of the cafeterias has a direct relationship to this competition. A competition of workers of the pipeline builders' cafeterias should be held within the framework of this famous campaign. This will help to reveal and disseminate the leading experience and will note the best foremen of the route culinary shop.

Now we will discuss urgent problems whose resolution, in my opinion, will not stand delay. This is first of all the shipment of early vegetables and fruits to the regions of the extreme north. One can only fly there by airplane, as is known. But there are not enough airplanes allocated and not at the right rates which would allow a considerable increase in these shipments.

Secondly, how can hot food be shipped to the regions of difficult access of pipeline construction where small collectives of route workers are laboring?

This is one of the most urgent problems. We would be very grateful to the designers if they would create a mobile cafeteria based on four-wheel drive vehicles. We need most of all a closed area for three-four tables and a room for an electric hot plate. Help the route workers designers!

9035

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## GENERAL

### ARMENIAN ENERGY SOURCE POTENTIAL EXAMINED

Yerevan KOMMUNIST in Russian 16 Jun 82 p 2

[Article by G. Adonts, academician of the Armenian SSR Academy of Sciences:  
"The Future of Our Power Engineering"]

[Text] Armenia has been deprived of fossil sources of energy from ancient times. With the establishment of Soviet power, the water potential began to be utilized. The output of all power plants in the republic now exceeds 3.9 million kW. Of them 656,000 kW is the output of Sevano-Razdanskiy cascade which operates on an irrigation schedule, that is in the summer and autumn months. The Armenian atomic power plant with output of 810,000 kW has been built and is operating. It is equipped with a foundation which guarantees safety during a 9-point earthquake.

In addition to the hydraulic power plants of Sevano-Razdanskiy and Vorotanskiy cascades, energy of small and medium rivers with total output on the order of 500,000 kW is included in the hydraulic potential. Construction of hydroelectric power plants on small and medium rivers, in particular on the water arteries of the Vokhchi and Argichi is currently among the primary objects.

Increase in consumption of electricity in the republic during the year is roughly half a billion kilowatt-hours. This means that within several years the republic will have a shortage of reserves and consumption of electricity.

However, the expansion of the Armenian atomic power plant will make it possible to solve this problem. Potentialities will also be used which are guaranteed by expanding thermal and building new hydroelectric power plants on small and medium rivers.

Devices are being developed to transform solar energy into electrical. Now the efficiency of the transformers is still low and does not exceed 9 percent. This electricity will cost 10-fold more than the standard to operate. However, work to transform solar energy into electrical must invariably continue. In particular we are concerned with ways to improve the efficiency of the transformers and to introduce that type of automatic equipment which could reduce the operating outlays. This is the urgent question of the day.

The scientists jointly with the Armenian Scientific Research Institute for Construction and Architecture of the Armenian SSR Gosstroy and the Armenian Scientific Research Institute of Mechanization and Electrification of Agriculture of the USSR Ministry of Automobile and Tractor Construction are involved in creating solar houses, solar greenhouses, fruit and tobacco dehydrators with the help of solar energy which operate in so-called low energy. The laboratory of mining thermophysics (headed by Professor Yu. Dyad'kin) of the Leningrad Mining Institute imeni Plekhanov jointly with the Armenian Scientific Research Institute of Power Engineering has been involved in developing a plan for using energy from the depths of the earth for the needs for providing central heating for the Shaumyan region in Yerevan and in the city of Leninakan. This work is only the first step to using the energy of the depths. It will subsequently become possible to involve it in the generation of electricity at the geothermal TES.

It seems to us important to use electricity by means of biological processes, bioenergy.

The solution to the problem of guaranteeing parallel operation of wind power plants with the energy system will help to "harness" energy of the wind for the national economy. The task is reduced to wise use of the energy of the earth, sun, wind and biological processes through guaranteeing parallel operation of transformers of these types of electricity with the energy system.

Because of the rise in the level of power engineering in the Transcaucasus republics, it becomes necessary to build intersystem power transmission lines. In the power engineering of the Transcaucasus, intersystem electricity transfers of Mingechaur-Akstafa, Akstafa-Tbilisi and Akstafa-Atarbekyan occupy an important place. Strengthening of the power transmission lines will guarantee the necessary transfers of current in individual hours of the day for all energy systems of the Transcaucasus republics. The achievements of science and technology in recent years should be used in power engineering. In particular this means to create conditions for the operation of power systems with the minimum number of people, to use and to optimize all levels of operation of the power system.

The Armenian Scientific Research Institute of Power Engineering is involved in questions of the balance of fuel and energy. This organization calculates its work for lengthy period of planning. Therefore it needs the help of other organizations of the republic to develop promising plans for the fuel and energy balance. It seems to use that we need a progressive change in the structure of the republic's fuel and energy balance by involving in it geothermal energy, small rivers, energy of the sun, biofactors and the wind. These sources are renewable, that is progressive.

It is primarily necessary to evolve competent institutions in the compilation of cadasters: solar energy, energy of the depths, the earth, wind energy in the republic. By using cadasters, we will be able to resolve the question of the areas where stations should be built to use the indicated types of energy. In addition, it is very important to train engineering cadres of power engineers.

This is being done at the power engineering department of the Yerevan Polytechnical Institute imeni K. Marx. The department has four sections which train power engineers. Unfortunately, laboratories of this department have not yet been arranged or properly equipped, and the task of the institute is to improve the quality of studies, theoretical and practical knowledge of engineers.

In addition, for coordination and mutual correlation of work on power engineering conducted in different organizations of the republic, we considered it expedient to restore the activity of the scientific council on power engineering in the Armenian SSR Academy of Sciences.

The 26th CPSU Congress indicated the basic trends for further growth in Soviet power engineering, the ways to improve the efficiency of the fuel and energy complex whose development has received an allocation of about 132 million rubles of capital investments, 1.5-fold more than in the 10th Five-Year Plan.

The decisions of the 27th Congress of the Armenian Communist Party defined the growth in power engineering as the most important factor in the development of the republic's national economy. In light of these decisions, it is necessary to examine the tasks of setting up power engineering for the near future.

9035

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GENERAL

SURGUT WANTS TO IMPROVE RECREATIONAL TRAVEL

Moscow TRUD in Russian 1 Jun 82 p 4

[Article: "Oil and Recreation"]

[Text] On problems of organizing tourism and excursions by young Siberian cities.

Tyumen' is a region of much oil, a region of young cities whose residents in most cases also are young. During the last 20 years the previously unknown taiga settlements of Surgut, Nizhnevartovsk and Urengoy have been given the status of cities.

Surgut is only 17 years old this year. The average age of the residents of this city of 158,000 population is about 26 years. Oil and gas field workers, power-engineering workers, builders and transport workers live and toil here. The young city is living with many problems. Primarily they concern an increase in oil and gas recovery. And the construction of housing, schools, children's institutions and facilities for social, domestic-amenity and cultural purposes, in other words, the creation of normal conditions not only for working but also for living. And simultaneously there is concern about the all-around development of the person.

The erection of facilities for social and cultural purposes lags behind industrial construction.

Under these circumstances, tourism and travel can be among the optimal ways for organizing free time for workers of the young city at minimal cost, particularly independent tourism. This covers all aspects of organizing leisure time for workers, particularly for young persons: the cognitive, educational and health-improvement aspects. Independent tourism does not require capital costs, but its yield factor is fairly high. This is a most important task. A round-table meeting organized in Surgut by TRUD's editorial board was dedicated to this most important task and to the problems of solving it.

V. Rusinov, secretary of the Surgut CPSU GK [city committee], opened the meeting:

"After publication of the CPSU Central Committee, USSR Council of Ministers and AUCCTU decree, 'On the Further Development and Improvement of Tourist and Excursion Affairs in the Country,'" he said, "our oblast developed measures for implementing it. But still we have not managed to unite the efforts of the ministries and agencies that are represented in the city. And although social councils have been

created in each rayon to organize large-scale cultural and physical-culture work by place of residence and within the dormitories, the problem as a whole has not been solved. It seems to me that today's meeting is very necessary. Despite objective difficulties, including transportation for trips, premises and impedimenta, the city party committee has extended and will extend support and help to tourism organizers."

O. Marchut, chairman of the ispolkom of Surgut's soviet of people's deputies, continued the talk:

"The settling of people in Surgut has, in a short period of time, increased 8-fold. Moreover, a tendency toward further growth of it is being observed, and this inevitably will create a number of problems, including the plan for satisfying cultural and social and domestic-amenity demands of the populace.

"In the absence of a 'single client,' the problem of building facilities for cultural purposes most rapidly can be solved only where the funds allocated for these purposes are centralized by the concerned ministries and agencies. The first steps in this direction have already been taken. A USSR Gosstroy and Gosgrazhdanstroy [State Committee for Nonindustrial Construction and Architecture] decree was adopted which transferred all funds for design to Minnefteprom [Ministry of Petroleum Industry], to which funds for the construction of facilities for cultural purposes have also been assigned.

"However, neither have we sat with arms folded. Twenty sports halls are operating in the city. To this will be added several more halls, which will enable all the city's microrayons to have them and the number of 'health groups' to be increased.

"Unfortunately, the results of our tourism have been much more modest. About 2 years ago the city had a center for renting impedimenta and equipment, three instructors worked on tourism, and itineraries were worked out. There were and, what is more, there still are many people who want to dedicate their free time to this marvelous type of active recreation. We have in Surgut a young tourists' club, 'Yugoriya.' It no longer has its shelter, but the ispolkom has already adopted a decision to allocate premises for a city tourists' club this year. After premises were granted last year for the Office for Trips and Excursions, this is the next step on the path to creating a material base for developing tourism in the city."

N. Novikova, director of the Surgut Office for Trips and Excursions:

"Under the existing norms, a tourists' club is allocated a staff unit for an instructor for independent tourism if the city has at least 100,000 residents. Therefore, as soon as the required premise exists, there will be an instructor. But is it true that there should be one instructor? I think not. In young cities everything is unusual--the work, the living, the pace, the vacations. Obviously, even the approach to them should be out of the ordinary: it is necessary to allocate the premises, the staff and the impedimenta even in advance, according to future indicators, to create ahead of time the prerequisites for the development of tourism, so that its activity can become an active means for organizing the free time of the residents of such cities as Surgut. One can be assured that such an 'advance' here will be repaid 100-fold.



"Our Office for Trips and Excursions has been in existence since March 1981. This year it is planned to serve 3,000 tourists and 8,800 excursionists. What sort of figures are these? We are not accommodating outside tourists: there is no hotel base in Surgut for this purpose. The 3,000 are those who arrive on river cruise ships from Tyumen', Tomsk, Kemerovo and Novosibirsk. But the excursionists are our Surgut schoolchildren, who are studying at the PTU's [vocational and technical schools], and Komsomol members. Excursions to Tobol'sk enjoy success. Another aspect of our work is the sale of tickets, as we say, 'for export,' to the Caucasus, the Crimea and the European part of the country.

"The basic principle of our work is to conclude agreements with trade-union committees to serve tourists and excursionists throughout the year. However, the supervisors of most enterprises, not just of Surgut, consider that it is more advantageous to send express messengers to Tyumen', Moscow and, at times, even directly to a southern city and to 'wring out' a scarce ticket to that place prior to the threshold of the summer vacations peak, and to obtain reservations from our office. As a result, many workers are compelled to vacation unsanctioned."

Ye. Mukhina, physician of the Surgut Regional Hospital and member of the USSR Supreme Soviet Presidium:

"According to data that has been received, of the total number of workers who work in the city's 24 trusts, approximately 1½ trusts per day issue bulletins and do not operate because of catarrhal illnesses. In this situation the role of tourism as a means of preventing illness is difficult to overestimate. The hardening of youth while hiking and trips by water exert a favorable influence on health, and that means sharply reduced worktime losses."

From the Editorial Board: Independent tourism, with its growing social significance in the shaping of morale and the physical improvement of the Soviet people, needs constant attention, especially in areas of Siberia and the Far North. We expect the Central, the Russian Federation and the Tyumenskaya Oblast councils on tourism and excursions to take concrete measures to solve problems raised by the participants in the talks at the Surgut roundtable.

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GENERAL

# TRAVEL CONDITIONS FOR PERSONNEL ROTATING TO WEST SIBERIAN OILFIELDS DEPLOYED

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[Article by A. Laletin (Ufa-Surgut-Tyumen'): "To Work and Return by Airplane"]

[Text] What disturbs oilfield workers who fly from the European part of the country to rotating-personnel duty in areas of the Tyumen' North.

I was conversing with a young oilfield worker in the airport waiting room, which was buzzing like a beehive. We somehow or other found room for ourselves beside some sort of a barrier. Waiting for the flight dragged out for many hours. And this forced waiting, under incredible crowding, incited my collocutor to a critical stance.

"My ticket one-way costs 80 rubles. And I fly to Siberia twice a month. I have to pay for the whole thing. But who devised such a ruination for the state! See: thousands of people go to work by airplane and return...."

My companion's exasperation was understandable. A difficult two-weeks rotating-duty tour had ended, and the man was impatient to get home for relaxation. But here he is held back because of bad weather for flying.

An unusual method for developing oil and gas fields in West Siberia--the expeditionary rotating-duty method, which has arisen in recent years, was engendered by the most gigantic scale of the work.

"Imagine," I said to him, "how many people would have to be brought to those places for short periods of time. This is many thousands of families. Each of them requires a well-appointed apartment, and tens or hundreds of schools, kindergartens and nurseries, and hospitals, stores, a network of domestic services, social dining, post offices, roads, clubs and stadiums would be needed....And many other things without which life of modern man is unthinkable. All this has to be built up on empty wasteland, and on a crash basis. But let us suppose that all this is built....What will be done with all of it when the development period ends and the need for so many oilfield workers disappears?"

I recalled the past errors of developing the Urals-Volga oilfield region. In Bashkiria, the Northern Volga and Ciskama, cities and settlements for oilfield workers rose up at the fields, 15-20 kilometers from each other at times. This was not cheap. Construction lasted a decade. Usually, prior to completion of the

construction of a city or settlement, development of the field was finished, automated oilfield equipment had gone into operation, and the number of workers was sharply reduced. And an unnatural situation arose: people in the well-appointed settlements could not find work. At a time when there was a general nationwide shortage of workhands!

Must this experience be repeated in West Siberia? Is it desirable to assemble many thousands of families in these inhospitable areas? For, according to the statistics, the upkeep of each person here costs the state 20,000 rubles per year. And, in the final analysis, what will these masses of people do when the construction boom ends?

Is there, as they say today, an alternative traditional path for developing new regions? There is. It is called the expeditionary rotating-tour personnel method. And neither is it cheap. But all this is in comparison. According to the economists' computations, the erection of just one trunk pipeline from West Siberia to the Central Economic Region by the expeditionary rotating-personnel method saves (we emphasize: does not increase costs, but saves!) the state half a billion rubles.

That is why subunits of Bashneft', Tatneft' and Kuybyshevneft' [Bashkir, Tatar and Kuybyshev Oil-Recovery Associations] and Saratovneftegaz [Saratov Oil and Gas Recovery Association] and, later, the Ukrainian and Belorussian production associations, were recruited for drilling work in Siberia. Neither more nor less--15,000 of these people fly over great distances today.

The expeditionary rotating-personnel method has entered firmly into the life of the Tyumen' North. However, not everything is well yet with the execution of long-range hauling of people. This was graphically evident to me when I flew with rotating personnel from Novobelokatay--a regional center in northeast Bashkiria--to Siberia.

And so in the evening, at Novobelokatay, I am sitting on a bus for rotating personnel, which brings the next shift of "Siberians" to their aerial journey.

We arrive at Zlatoust at night. We wait in the station waiting room for the Uchaly-Ufa passenger train. This time things worked out like this: the train was "about" 2 hours late. But there was not enough room in the cars with numbered reserved places: half of the rotating personnel rode in the common coaches.

In the morning we are in Ufa. And the airplane leaves in the evening. You can wander wherever you wish.

By evening, drillers, mechanics, electricians, mechanical engineers, derrick erectors, geophysicists, workers of the brigades that operate the wells, women cooks, and boilermen from many of the country's cities gather in the airport waiting room.

There are very few of them who complete the trip in one day: ordinarily it takes a second or third day. Here in the center of the waiting room **are rotating personnel**, typical in appearance, on their suitcases and rucksacks. Some sleep directly on the floor, some nod from drowsiness, waiting for a free spot.

It turns out they are going to Saratov. They flew from Surgut 3 days ago and now they languish in Ufa, because on the Lower Volga the weather is bad for flying.

...At 2200 hours our TU-134 sets course for Surgut. We land deep in the night. But not in Surgut--in Nizhnevartovsk. Because the airport of destination did not accept Ufa airplanes....

At the local airport waiting room, as it is called, there's not enough room to swing a cat. From 0100 hours to 2200 hours of the next day none of the Bashkir "flying rotating personnel" managed even to sit down. For almost 20 hours they were on their feet! There was nowhere even to get a glass of water.

"...The water-storage heater, you see, is out of order, and there is no other source of drinking water," explains M. S. Novgorody, chief of the service for organizing haulage, in embarrassment.

He expressed sympathy, this administrator, tired of all the fuss and the passengers' questions about when the flight would take off. He is not in charge of the weather! And it is not within his powers to speed up the introduction into operation of the new airport waiting-room building, which has been under construction now for 6 years. Each day 30 times (!) as many passengers pass through the present airport waiting room as the design called for. More than 2,000 of them are "flying rotating-duty personnel"!

Late at night, a day after the flight from Ufa, we finally landed in Surgut. Buses are there at the airport: they will deliver the drillers to the distant fields. But they still face transfer to a Ural, which is highly roadworthy but, alas, cold, the bodies being covered with tarpaulin.

It is absolutely necessary to improve the hauling of "airborne rotating-duty personnel." The transfer of "flying rotating-duty personnel" can and must be done less exhaustingly and with greater elementary comfort. They understand this at the Ministry of Oil Industry, because each order that touches on the rotating-personnel method mandatorily includes the appropriate instructions. And the orders are issued one after another, but a change for the better does not come. I refer to the decree of the ministry's board of 11 December 1980, according to which prefabricated housing which will serve as dormitories at the Nizhnevartovsk and Surgut airports have been allocated for "flying" administrations from Glavtyumenneftegaz [Main Administration for the Oil and Gas Industry in Tyumenskaya Oblast] funds, for cases of delays of any kind. Forces of Saratov, Tatar and Kuybyshev drillers assembled only three dormitory-type housing units at the Tayezhnyy settlement (half an hour's walk from the Surgut airport), but there is nothing to heat them with, because the local heating line "does not reach there," and, what is more, the housing can accommodate only a small portion of those expected. Meanwhile, thousands of people wander about overfilled waiting rooms at the Surgut, Nizhnevartovsk and Nefteyugansk airports, and not everyone is able to endure such "conditions" for a long time....

It is not just the aviators and their trade-union central committee who should bestir themselves and think seriously about all this. But the soviets and trade-union committees of the places where the unusual and difficult road lies for people to go to work in Siberia and return should do so.

GENERAL

BRIEF

TATARSKAYA NUCLEAR POWER STATION--Tatarskaya ASSR--Erection of the Tatarskaya Nuclear Electric-Power Station has started on the picturesque shore of the Kama River, by the old village of Kamskiye Polayny. A high-capacity construction base is being created, the first temporary housing, where the pioneers will live, has appeared, construction of the first well-appointed five-story apartment houses has commenced, and highways that run to Naberezhnyye Chelny and to the Kama River are being built. And the foundation for construction of the administration building is being laid. [Text] [Moscow TRUD in Russian 8 Jun 82 p 2] 11409

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